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ABSTRACT

Starting from the premise that educational problems and solutions must be viewed primarily from the point of view of their effect on the learner rather than on the teacher and administrator, this book emphasizes all the roles that television can perform in targeting upon the needs of the learner. Beginning with a quick summary of the state of the art, the book continues into the theoretical relationships between instructional television (ITV) and the concepts of society, knowledge, and learning. The bulk of the book is devoted to pragmatic discussion about the use of ITV. Programing and studio production techniques and hardware requirements are explained. An evaluation of teaching with television is made and emphasis is placed on the teacher's attitudes, roles and responsibilities in working with ITV. Overall, the book gives consideration to all the persons involved in an ITV situation. (MC)

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itv: promise into practice

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FOREWORD

Perhaps no other development has had the profound effect on the life style of Americans as that of television. To future anthropologists, psychologists and sociologists rests the task of assessing the ultimate impact of this communication medium.

Obvious, however, is the fact that the dynamic potential of television for elementary and secondary education has yet to be realized. The key element to the activation of this potential—with the increasing availability of television programs, receivers, recorders, and signal—will be the teacher's capacity to creatively and effectively orchestrate television as an integral component of the learning experiences provided students.

Manuals and guides abound for teachers in the mechanics of utilizing television in schools. This unique publication, however, surmounts mechanics by expositing a design for curriculum decision making to include the multitudinous roles which television can perform in targeting upon the needs of the learner. Hopefully, through this effort, the humane element of man's technology can begin to be unleashed for the benefit of youth.

G. R. Bowers
Assistant Superintendent, Instruction
Ohio Department of Education

We must force ourselves to view educational problems and solutions primarily from *the point of view of their effect on the learner* rather than on the teacher and administrator; otherwise there can be no guarantee that the additional monies, the new practices, the personnel and the technologies will do little more than facilitate a prettier or smoother running environment, but with no measurable improvement in learning. (Italics added)
—*Toward a Significant Difference*

About This Book

This is a book about learning and learners . . . and about teaching and teachers. It is also about television and the impact that instructional television (ITV) can have on all four.

We want to encourage systematic thinking about the role of ITV in education, and we feel strongly that such thinking should put the *learner* first. Too often television has been considered as an addendum to a firmly established curriculum. Consequently, it has often had less than the hoped-for effect on learning.

Education is a complex process, and deciding what should go into a coherent, meaningful curriculum requires systematic thinking. To show how decisions about television can (and we think should) fit

1 itv and society
2 itv and knowledge
3 itv and learning
4 itv programming
5 teaching with television
6 decision making:
turning inward,
then outward to learners

into the various stages of curriculum design, we have organized this book around a modified curriculum decision-making model. We hope to demonstrate one clear path through the maze of elements to be considered in deciding whether, why, how, and when to use ITV, as well as what kinds to use and for whom.

Not everyone will have the time to pore over every page of this book, or even want to. It is meant for dipping into and sampling, for thinking about, and even for arguing with. Different parts will interest different people. We hope it contains ideas that will help educators become more thorough in their thinking about the place of ITV in learning, in their decisions to use or not use it, and in their knowledge of how to use it.

The Model

At the heart of the curriculum decision-making model is the learner, today's kid living in his own world. There is little doubt that the television he sees at home greatly affects his understanding of the world and how he fits into it. In-school television can do the same, but more purposefully, provided that it is chosen from an informed frame of reference according to a rational plan.

Sound curriculum decisions are usually dependent upon two sets of influences. One is general and theoretical; the other, practical and pragmatic.

The first set of influences takes up television in relation to society, knowledge, and learning—the background against which decisions are made about the purpose, content, and process of education. Common sense and tradition have been, and still are, invaluable ingredients. We assume that readers are well equipped with both. However, the broader the outlook—that is, the more data (inputs, as the systems analysts call them) one has—the sounder his decisions are likely to be. The points of view and perceptions of many of the frontier thinkers included here are purposely clashing and dissonant, and readers are free, even encouraged, to disagree, too. Here and in the rest of the book we do not want to present just one smooth persuasive view, but want to offer conscientious teachers enough different perspectives and information to enable them to make informed choices and to implement their choices wisely.

In the other, pragmatic, stream feeding into the heart of the model, we first consider the state of ITV programming available for broadcast, and then the additional possibilities offered by supplementary delivery systems. Next comes some down-to-classroom advice about using ITV for teaching, derived mostly from students, teachers, and ITV personnel who've been involved in curricula where television plays an important, revitalizing part. Some advice even comes from people who've not liked what they've seen on TV.

After these source chapters, we focus on the heart of the model: decision making related to the student—his needs, the learning experiences that can best fill them, and the environment in which he can learn what he needs to know.

If this framework facilitates rational, realistic decision making about the role of television in a student's life at school, we will have achieved our purpose.

But first, a look at the state of the art . . .

Bonnie Cherp Gilliom
Anne Zimmer
Columbus, Ohio, 1972

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getting with itv

If by some quirk of fate, instructional oral television had preceded the invention of movable type, we might well be making a case now for the appropriateness of books in the educational process.
—Donald G. Emery

The discovery of the alphabet will create forgetfulness in the learners' soul . . . your disciples . . . will have learned nothing.

* * * * *

A terrible thing about writing, Phaedrus, is this . . . you might think they [books] spoke with intelligence, but if you put a question with a wish for information on a point in what is said, there is one, only one, invariable reply. Further, once a word is written, it goes rolling all about, comes indifferently among those who understand it and those whom it in no wise concerns, and is unaware to whom it should address itself and to whom it should not do so.
—Plato

I like TV because it is interesting. I don't like it because it won't repeat things and I can't ask it questions.
—Teresa

And she loves to ask questions! She is constantly worried . . . and likes to be reassured.
—Teresa's teacher

The key person in any classroom inquiry situation has to be an individual . . . who can sense what needs to be done in terms of where the children are and what kinds of goals there are, and take care of decisions that have to be made on the spot . . . who can sense what questions should be raised next, what kinds of data should be thrown into the picture, and where things should be shifted to make possible further learning . . . who is there on the spot to diagnose individual and group requirements and progress in light of educational goals. Only the classroom teacher can perform this function.
—J. Richard Suchman

I think about the only problem with school TV is that the TV teacher doesn't know if you've answered right or wrong.
—Jeff

But I know.
—Jeff's teacher

Plus ça change, plus c'est la même chose [and shows?]
—Slightly fractured French proverb

Pro: TV in school?
I love it.
I like it.
I enjoy it.
I learned from it.
—Marsha

I like the Art show the beast because you can color and paint and drawl.
—Mike, grade 2

And, so far, he expresses himself better with paint than with words.
—Mike's teacher

Far from decrying and opposing onrushing technology, we must see technology as an ally, a force that can as easily enhance as diminish the human spirit.
—George Leonard

Educators and technologists argue over whether they will ever be able to teach human values, sensitivity, social awareness, and moral responsibility by machine. Yet it is technology, properly planned, which enables human beings to operate more efficiently and effectively.
—*Toward a Significant Difference*

Dear Sir,
Even though I've watched your show only twice, it was so interesting that I couldn't take my eyes off the set.
—Your favorite fan

I felt I was right there in the play, and I got a lot out of the discussions we had afterward.
—Greg, grade 12

The show made everyone sad or at least have some kind of feeling in them.
—Amy

We learn things by watching TV that are impossible to learn from lectures.
—Ann

We learn what our voice looks like.
—Brian, grade 2

My science classes have watched a cecropia moth emerge from its cocoon . . . which actually takes half an hour or more . . . and there was no waiting for turns to look . . . we saw a daffodil open, wither and die . . . we were taken on a commercial fishing trip . . . far removed from my midwestern classroom . . . we learned . . . a good lesson in conservation.
—A teacher

After viewing a show on Northern Ireland, one young lady wrote:
Why don't they move away from each other if they hate each other. They can go to Ohio.

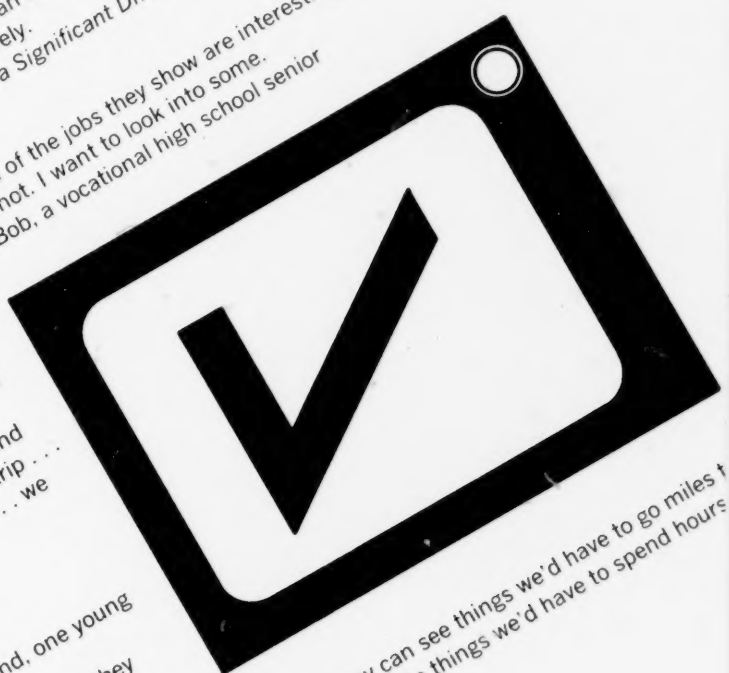
Basically, the nature of teaching is activating some kid to try something out.
—Jerome Bruner

The questions are fun to find out.
—Tom

It's fun to see the puppets and it's funner to learn.
—James, grade 3

I found out about a lot of good books to read. I read 82 books since September.
—April

Some of the jobs they show are interesting and some are not. I want to look into some.
—Bob, a vocational high school senior



With TV they can see things we'd have to go miles t see. They can do things we'd have to spend hours getting ready for.
—A teacher

TV science makes me want to do some research. It tells enough to get me interested but it doesn't tell all about it.
—Kristel

Con:

Instructional television . . . captured the imagination of parents and educators when it was first introduced in the late 1950's, but its curve of educational interest flattened out during the 1960's and only now . . . are demonstrations under way that promise to show educators and society a new facet of this lively medium.
—Robert Hudson

Someone has said that television is a medium because so little of it is rare and it's seldom well done.
—An ITV producer

We have new languages to learn if we don't want to talk ourselves to death.
—Postman and Weingartner

Too many programs are too much like us.
—A teacher.

My only suggestion is that we see more programs. I've seen only 4 or 5 all year.
—Randy

. . . The total disappearance of instructional television would leave the educational system fundamentally unchanged.
—Report of the Carnegie Commission on Educational Television, 1966

No one has all the answers to the future of television in education, and it may be hoped that there will never be a point at which everyone concerned can stop asking questions, experimenting and sometimes failing. We keep looking for new ideals and we keep falling short of them; we try new things and we frequently are discouraged and disappointed; but we are proud of those moments when television has helped to provide some truly meaningful learning experiences. Television has great potential in furthering the educational process and we must continue to look for the best ways to help the learner to learn and the teacher to teach.
—Richard Burke

There's an emerging need to initiate efforts in instructional television based on research rather than continually using ITV efforts as a vehicle from which redundant research results are reported.
—C. Edward Cavert

It's about time we got beyond televised instruction that makes "no significant difference." Precisely what we need are programs that will make a significant difference.
—James Loper

Systems are put out long before they are thought out.
—Marshall McLuhan

He knew what he was talking about but I did not like listening.
—George

A student will listen only if he wants to, and you have to make him want to.
—Joe Cool

Getting with ITV

Twenty years ago only about 1,000 students in the United States received any schooling via TV; in 1971, the figure had grown to an estimated 15 million, and 75 percent of the public schools, enrolling 82 percent of all pupils, received broadcast instruction by television. In nine years, from 1961 to 1970, the hours of instructional television broadcast during one week rose from 775 to 4,520, not counting the sensationally successful "Sesame Street." And in 1972, "Sesame Street" and "The Electric Company" together had 13 million regular viewers. Whatever anyone thinks of instructional television, in sheer volume it is increasing rapidly.

The next dramatic spurt may well come in forms other than broadcast ITV. By 1970 more than one-fifth of the public schools could record material off the air and play it back at their convenience. Well over a third of the country's secondary schools, where scheduling problems are particularly severe, have some such device. In the near future, the predicted increase of commercial community cable companies seems likely to make more channels available to schools more economically. If so, the number of students in schools and school systems that supplement regular broadcast ITV with local programming carried over their own delivery systems may rise rapidly from the 11 percent of 1970.

Clearly, television has come to school. Most teachers familiar with the medium feel it has definite advantages for teaching, some inherent in the medium of television and some in the assistance it offers teachers in managing the total learning environment.

That does not mean that ITV is without limitations or that using it presents no problems. Nor is all ITV programming equally excellent or always effective: much depends on the program, and more depends on the teacher. Although over the years much has been learned about instructional television, chances are good that the nature of the medium itself and how it communicates have yet to be fully understood.

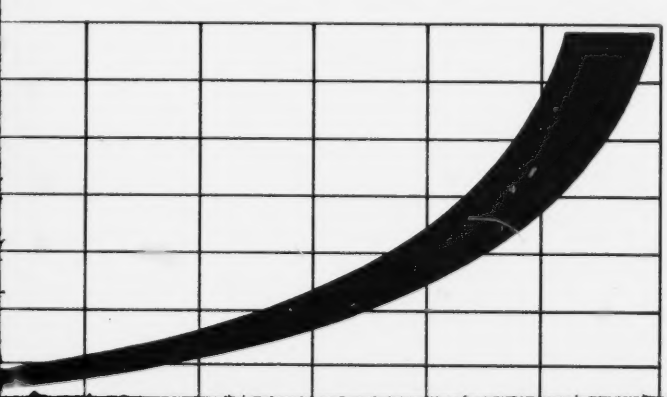
Research has established beyond reasonable doubt that students *can* learn from television. Many earlier studies tried, understandably, to find out whether students learned the same material equally well when presented in the same way live and over television—and the usual answer was "No Significant Difference."

Now that we know more about television, people are asking different questions. Interest has shifted to how the teacher and TV together can most effectively help students to learn. And increasingly, educators, producers, and researchers are specifying what learning should result from watching a specific program or series of programs. If these attempts at validation prove successful, then instructional television should take a giant step toward a more central place in instruction.

Meanwhile several other major trends are underway. One is toward larger production units by way of consortiums, which have sufficient resources to draw on the best curriculum thinking available and to fund production more adequately. This development is particularly important in light of the chronic poverty of public television, including ITV. Many public stations subsist for a year on less than $500,000, which can be swallowed up by one hour of prime commercial time.

A parallel trend is toward more local production by schools and school districts. Such production can meet needs more specifically than can regular broadcast ITV, which covers a wider geographical area. And as hardware becomes progressively cheaper and easier to manage, students are beginning to create television rather than just watch it.

If this does become the decade when ITV lives up to the high promise envisioned by its most optimistic proponents, the reason must be the right one. It should not be that teaching with television is easy, because doing it well is not. It should not be that ITV



itv?

is cheap, although compared to alternative solutions to educational problems, it can be. It should not be simply that ITV is more readily available. Teachers should choose to use television solely because, under a specific set of circumstances, television is the best means of helping students learn what they need to know in order to survive in this complex and fast-changing world.

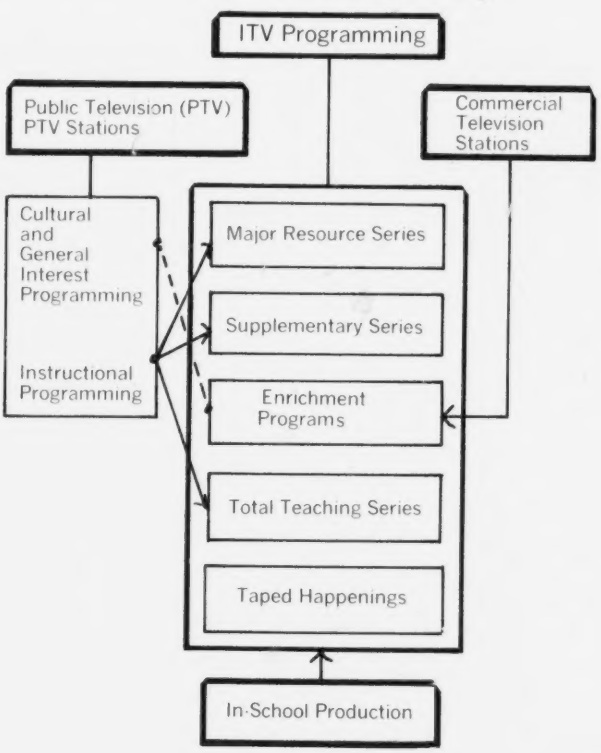
That is a decision that teachers must make for themselves. We hope to provide enough information and varied perspectives to allow them to make it wisely.

What is ITV ?

Instructional television, commonly called ITV, is actually any television that a teacher decides to incorporate into a learning plan. ITV is usually considered to be that part of public, or nonprofit (as distinguished from commercial), television intended to be used *in schools to facilitate learning*. Most such programs are designed in a series and aired over successive weeks. They can play various roles in the teaching/learning process. Instructional television as a major resource, as supplementary material, as a source of enrichment, and as total teaching is discussed in Chapter 4, pp. 64–70.

In Ohio, nonprofit corporations perform the many operations involved in providing instructional television to the public schools, including helping teachers to use ITV.

Sources of ITV Programming



A Short Course in ITV: Some Questions Teachers Ask, and Answers

T: I'M CONCERNED ABOUT ALL THE PASSIVE VIEWING TIME THAT KIDS ALREADY SPEND IN FRONT OF THE TV AT HOME. I WANT MY STUDENTS TO GET ACTIVELY *INVOLVED* AT SCHOOL.

A: So do most of the people who design instructional television. Many programs promote activity and involvement in many ways. In fact, much of the worth of instructional television lies in the help it offers teachers in promoting the very involvement you're asking for. And of course when students actually *create* TV, as more and more are doing, they become very deeply involved.

T: ALL RIGHT, BUT WHAT CAN TELEVISION DO THAT I CAN'T?

A: Fundamentally, as a medium, television can carry messages—good, bad or indifferent. Used well, television can communicate exceptionally well. It can concentrate attention on material to be learned through—

Clear, tight focus that eliminates distractions
Magnification
Slow motion
Stop-time photography, etc.

It can make a multi-sensory impact.

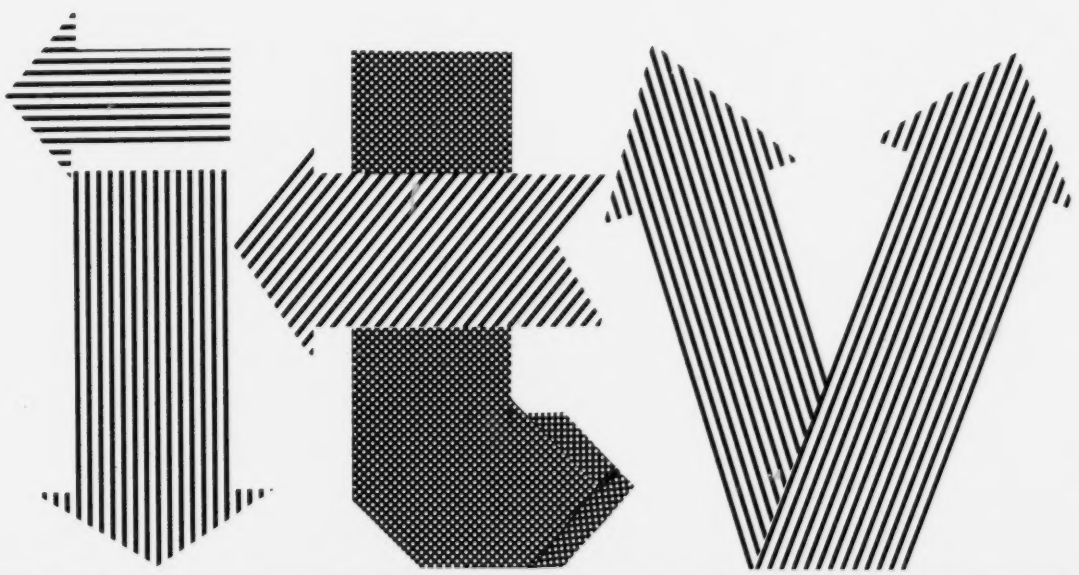
This is particularly important when material presented is not primarily verbal. Television can often demonstrate skills—from surgery to Spanish pronunciation—more clearly than live performances can.

And students who are not particularly skilled verbally can often learn better by watching as well as listening.

It can multiply messages, making them savable and repeatable. Since one preparation reaches many students, much time, money, thought, effort, and expertise can go into the planning of ITV lessons. No one classroom teacher can possibly devote as much effort to any one preparation. Telelessons can be—

Planned according to expert thinking about teaching methodology and content.

Conceived imaginatively, sometimes in settings far removed from a classroom, using techniques not available to a teacher.



Carried out by a specialized team that includes expert graphic design support.

T: THAT SOUNDS AS IF IT COULD BE REALLY HELPFUL. WHAT SUBJECTS CAN TELEVISION HELP MY STUDENTS LEARN, AND HOW DOES IT FIT INTO THE CLASSROOM?

A: Research has shown that television can help students learn almost any subject at almost any level though not, of course, that it always does. It can add to classroom learning activities in many different ways.

It can bring in instruction that would not otherwise be available:

In special subject areas, such as library usage, art, science, physical education, driver's training

To geographical areas, such as rural districts and the inner cities, where instruction might be below standard

To special audiences, such as a few college preparation students in a vocationally oriented high school, or a few students who want a special vocational course in an academic high school

It can bring in resources that would not be possible or practical otherwise:

Artistic performances beyond the scope of the teacher or school: Van Cliburn, instead of a school music student; professional performances of Shakespeare or Albee; etc.

Guests who would not otherwise be available, from celebrities like Neil Armstrong to people with special knowledge or resources to share: a zoo curator and his iguana; a collector of Chinese jade

Scientific experiments too dangerous or expensive to perform in class

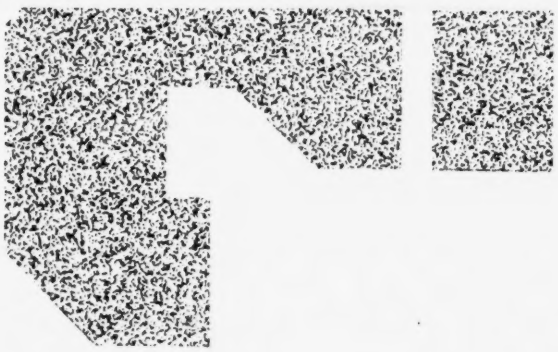
Over either public or commercial television, current events as they happen: moon landings, splashdowns, Senate hearings, inaugural speeches, etc.

It can help students take more responsibility for their own learning:

By motivating students to further learning

By acting as a resource for individual and group projects. For example, a student studying African geography could look up and use a video tape about the Congo.

By promoting certain skills
- Selective listening
- Constructive questioning
- Discussion based on the common TV experience
- Note taking when appropriate



By allowing students to record, play back, and critique their own performances, using video tape recorders

T: SEEMS TO ME TELEVISION MAY MAKE LEARNING BETTER, BUT TEACHING HARDER. I'D HAVE TO BE RIGHT IN THE THICK OF THINGS.

A: That's right, if you use it well. Essentially television is a one-way medium with pre-determined pacing, at least so far. It can assist a sensitive, alert human being to help others learn, but it does not often replace a teacher. It won't make your job easier, only more possible.

T: CAN ITV HELP ME?

A: Yes, indeed. It can—

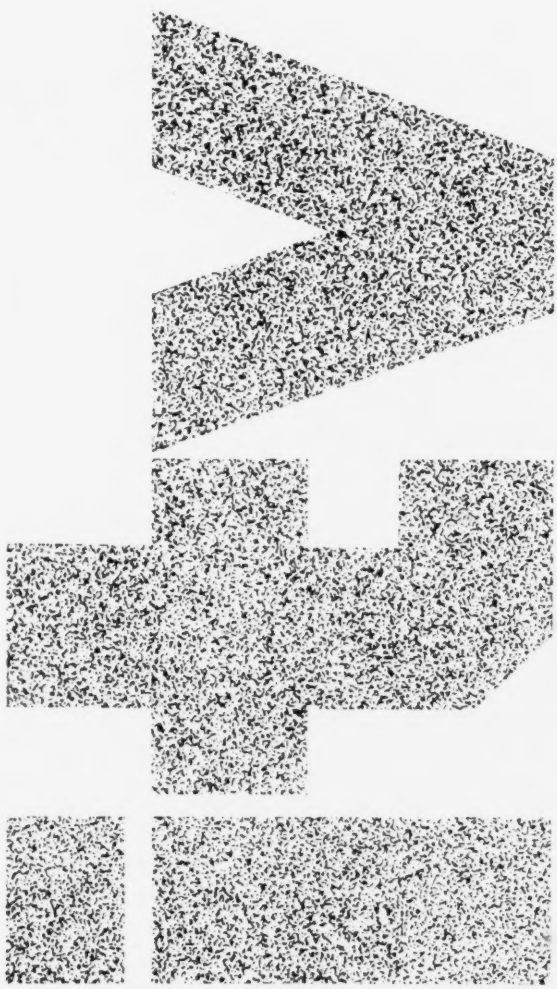
Expose you to other styles and techniques of teaching, which may enable you to extend your own range.

Show you new or different information and means of structuring it.

Allow you to re-examine the teaching/learning process more closely, because while students watch, you are free to observe what happens and to evaluate the results afterward.

Bring you in-service training, hopefully some of it in ways to use ITV, instead of your having to travel, perhaps at your own expense and on your own time, to it.

Bring staff meetings to you, too, if your school or school system has its own means of originating and distributing ITV.



Give you a chance to watch yourself teach and evaluate your own performance, provided you have access to a video tape recorder.

T: AREN'T THERE ANY DRAWBACKS, ANY PROBLEMS?

A: Many problems arise from the way instructional television is used. Used badly, for instance, ITV can foster—

Depersonalization. Students need contact with live teachers as much with ITV as without; in fact, their opinion of the medium is closely linked to their feelings about the amount of contact with a teacher they have while using it.

Disenchantment. Many teachers expect ITV to take over much of their job or to work miracles of learning, unaided.

Bureaucracy. Too often, the ITV organization is set up without easy, direct lines of communication. Someone in each building should be appointed ITV coordinator, to act as a direct two-way link with the source of programming.

Then there are more specific problems that have arisen as ITV comes of age:

Some teachers are not aware of the many and flexible ways in which instructional television can be used.

Different kinds of series play different roles in the teaching/learning process and, to be used well, require that the teacher use them differently:

A total teaching series, which does the whole job, is rare; it is used only when a specialized teacher is not available or when few students need a course.

A major resource series structures a course, leaving a teacher free to concentrate on managing individualized learning.

A supplementary series leaves the main course structure to the teacher and illuminates audio-visually some elements or portions of it.

Different viewing groups may benefit best from different programs: ITV can be assigned to individuals and small groups as well as to the whole class. Teachers and students can use video tape recorders to record and play back their own performances and learn by seeing themselves.

Sometimes inadequate facilities within schools interfere with learning:

Scheduling. If a school does not have equipment to save broadcast ITV and play it back when convenient, many students frequently cannot see what they need to see.

Too few sets. When teachers must share sets, the scheduling problems are compounded.

Poor maintenance. And when sets don't function, nobody sees anything on them.

T: I DON'T KNOW. IT SEEMS COMPLICATED. I WONDER WHY WE NEED ITV, ANYWAY.

A: We need it because modern society is subject to so many strains, and because society makes tremendous demands on our schools. Somehow we have to cope with problems generated by—

The population explosion
The knowledge explosion
The vastly accelerated pace of change.

Of course, television can't do this by itself; but it is an excellent means of getting into practice quickly many of the key ideas current in education, which *may* make a difference:

Inquiry and discovery
The structural approach to knowledge
The need to develop the emotions and to stimulate participation
The need to individualize learning.

In short, television offers one way to make survival and even constructive change, possible. You have to start somewhere.

T: IF YOU PUT IT LIKE THAT, I MAY AS WELL TRY IT.

A: I think you'll like it.

Many approaches based on new technologies have . . . come to fruition slowly, after first being oversold as revolutionizers of the classroom. Television, after a long and difficult start, is now an educational medium overdue for serious use.
—Task Force on Higher Education

The time has come to stop talking about what technology is doing to people and to talk about what technology can help people to do.
—An administrator

Crisis always reduces the acceptability of halfway approaches.
—*Toward a Significant Difference*

We are impelled by logic, by justice and by economics to put telecommunications to work *now* for education.
—Sidney Marland, U.S. Commissioner of Education

Men can do all things if they try.
—Leon Battista Alberti (1404–1472)

The television age places a special responsibility on . . . educational services to provide opportunities in which the young person can do things himself and join with others to experience directly, not vicariously, the effect his actions have on others and how others respond to him.
—Sidney Marland

Tinkering and demonstration projects won't help the present predicament of urban public education.
—Kenneth Clark

Courage does not need the safety of an unquestioned conviction. It includes the risk without which no creative life is possible.
—Paul Tillich

It is the business of the future to be dangerous.
—Alfred North Whitehead

1 itv and society
2 itv and knowledge
3 itv and learning
plugging into theory

The aspiration of our time for wholeness, empathy, and depth of awareness is a natural adjunct of electric technology . . .

* * * * *

In the electric age we wear all mankind as our skin.
—Marshall McLuhan

1 itv and society

Most people . . . think technological developments are either all good or all bad. . . . The automobile, for example, gave people mobility, freeing them to move to the suburbs, but it also presented the problem of building all weather roads. And, depending on how you look at it, the invention of the automobile contributed to an increase in church attendance, to sexual promiscuity, or to a breakdown in neighborhood solidarity.
—M. Roe Smith

Little boxes on the hillside,
Little boxes made of ticky tacky,
Little boxes, little boxes,
Little boxes all the same.
There's a green one, and a pink
little boxes all the same.
one, and a blue one, and a
yellow one,
And they're all made out of
ticky, tacky, and they all
look just the same.

And the people in the houses
all go to the University,
And they all get put in boxes,
little boxes all the same. . . .
—Malvina Reynolds

More and more it appears that if television is to fulfill its potential for enhancing the educational process it will have to be used flexibly and imaginatively to encourage individual learning and it will have to take its place in an instructional system where the classroom teacher plays a new and critically important role as the director of learning.
—Murphy and Gross

It is not uncommon for Americans to substitute educational reform for basic social reform and then to castigate the schools for having been unable to reform the nation's social class structure.
—Patricia Gerald Bourne

The classroom is now in a vital struggle for survival with the immensely persuasive "outside" world created by new information media . . .

* * * * *

Today's television child is attuned to up-to-the-minute "adult" news—inflation, rioting, war, taxes, crime, bathing beauties—and is bewildered when he enters the nineteenth century environment that still characterizes the educational establishment . . .
—Marshall McLuhan

The fact that the new media are inseparable from the changes occurring in the environment requires that the schools' virtually exclusive concern with print literacy be extended to include these new forms . . .

* * * * *

We have new languages to learn if we don't want to talk ourselves to death.
—Postman and Weingartner

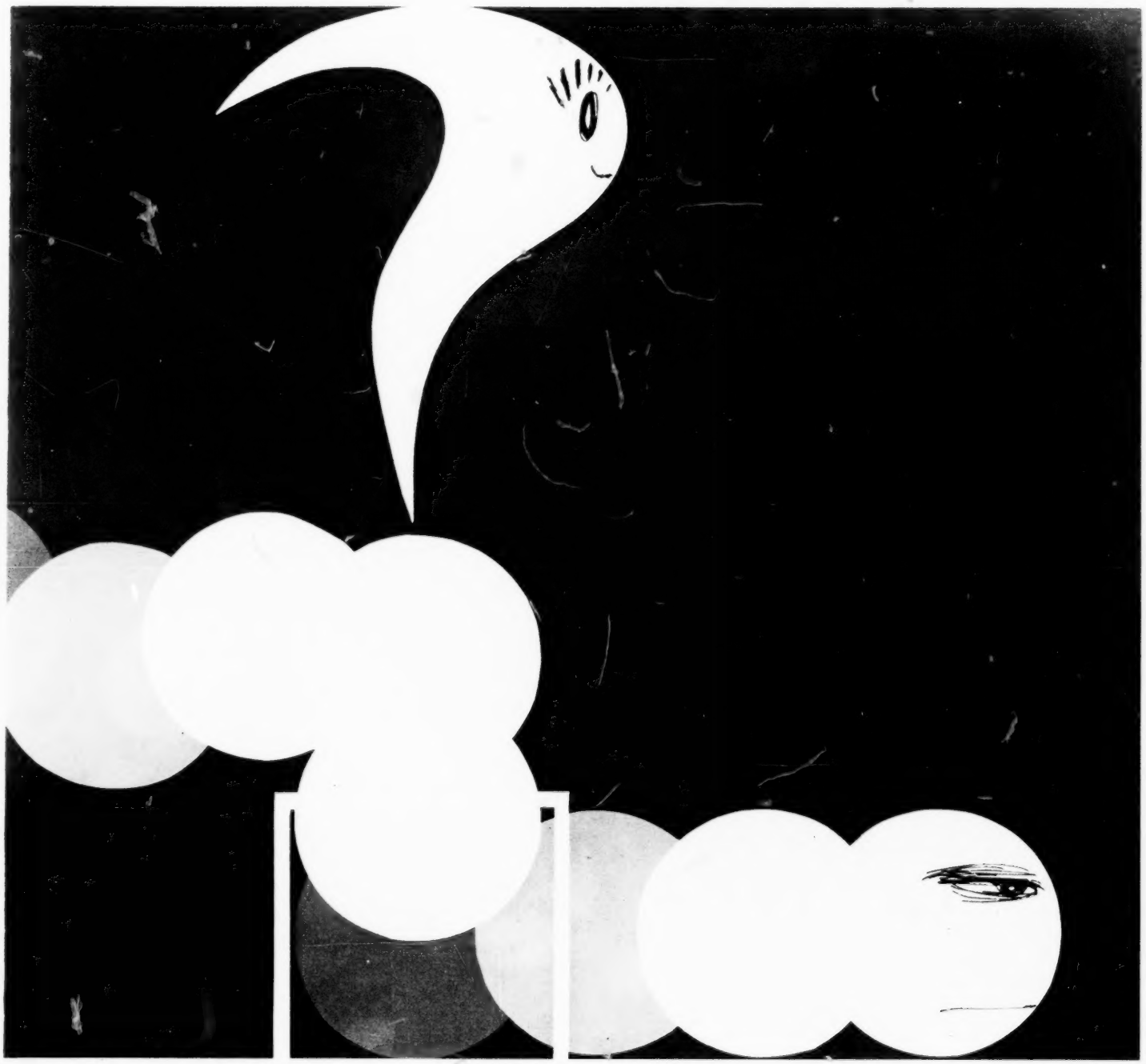
Mass education was the ingenious machine constructed by industrialism to produce the kind of adults it needed . . . the whole idea of assembling masses of students (raw material) to be processed by teachers (workers) in a centrally located school (factory) was a stroke of industrial genius . .

* * * * *

. . . the entire thrust of the future carries away from standardization . . . we have reached a dialectical turning point in the technological development of society. And technology, far from restricting our individuality, will multiply our choices—and our freedom—exponentially.
—Alvin Toffler

The now chronic top-to-bottom state of emergency in our schools does not exist because the educational establishment is not good enough and needs repair. The crisis is that the culture is not good enough. The educational establishment, with all its compulsions, its disciplinary hangups, and—yes—even with its constabulary forces patrolling the corridors—all this only exists in the first place because of the insecurity of the culture.
—Theodore Roszak

Because something is happening. But you don't know what it is. Do you, Mister Jone
—Bob Dylan



Children enter school as question marks
and leave as periods . . . . . .
—Anonymous

Cool. We hear a lot of things called cool today. But what does it mean? To Marshall McLuhan, the media philosopher-poet taken up by so many of today's youth, cool means a kind of commitment or participation in situations that involves *all* of one's faculties, *all* of one's senses. Children are cool . . . the electronic era is cool . . . TV is cool.

Hot. Hot is the flip side of cool—an overdependence on a *single* sense: an overemphasis on the linear, the sequential, the fragmented, the assembly-line techniques, the eye marching across the page. According to many philosophers, anthropologists, and sociologists, those of us reared in the industrial era are like immigrants struggling to grapple with the unfamiliar conditions of life in a new, cool electronic era. The industrial era is hot . . . are we hot? . . . is education hot?

The media through which we receive our perceptions affect the way we react to the world.
—Marshall McLuhan

There are children playing in the street who could solve some of my top problems in physics, because they have modes of sensory perception that I lost long ago.
—J. Robert Oppenheimer

My generation is special. . . . The first to take technology for granted. . . . The first to grow up with TV. My sister was 8 when we got our set, so to her it seemed magic and always somewhat foreign. She had known books already and would never really replace them. But for me, the TV set was, like the kitchen sink and the telephone, a fact of life.
—Joyce Maynard, an 18-year-old in '72

Today, nowhere in the world are there elders who know what the children know. . . . There are no elders who know what those who have been reared within the last twenty years know about the world into which they were born.
—Margaret Mead

Cool: Children and Youth, The Electronic Era, TV

Anyone having watched a baby develop must be aware of a child's phenomenal rate of learning and of his all-sensory processes of discovery. A key chain (and how many of us have handed one over in an attempt to distract the wee one?) is thoroughly tasted, smelled, felt, balanced, jingled, perceived in dozens of different ways, and perhaps even named a special thing. This is a cool kid. He is involved in a depth experience. All his senses are a-tingle, turned on and tuned in. Soon he is watching television, and he is especially enraptured by the commercials—Madison Avenue seems to know a bit more about gaining attention than most of us in education do. By the time he is three, he is closing the mesh of TV's images at the rate of 28 hours per week. And by the time he is 18, he will have *experienced* more hours as the "screen," with TV's sights and sounds projected on him and wrapped around him, than he will have *spent* in school.

Today's youth are first-generation citizens of the electronic age, youth living in a world in which events instantaneously occur before them, giving immediacy to the drama and complexity of life itself. Their slang reflects this; they are "with it." Although their "it" may be a kind of immature maturity, they have a much broader background of information and skeletal cognitive structure than we did at their age. They see that the new tasks created by technology, especially by thermonuclear power and the instant information sources (computers and TV primarily), are often handled clumsily and with some awe and distrust by elders; their "born-into-it" lack of awe enables them to *feel* that there must be a better way to handle these tasks and that they must find it. What they seek is involvement, but involvement of their own making.

Youth are at home in this time; sometimes we are not. Some of Margaret Mead's examples:

> Given the facts, they understand immediately that continued pollution of air, water, and soil will soon make the planet uninhabitable and that it will be impossible to feed an indefinitely expanding world population.
>
> As members of one species in an underdeveloped world community, they recognize that invidious distinctions based on race and caste are anchronisms.

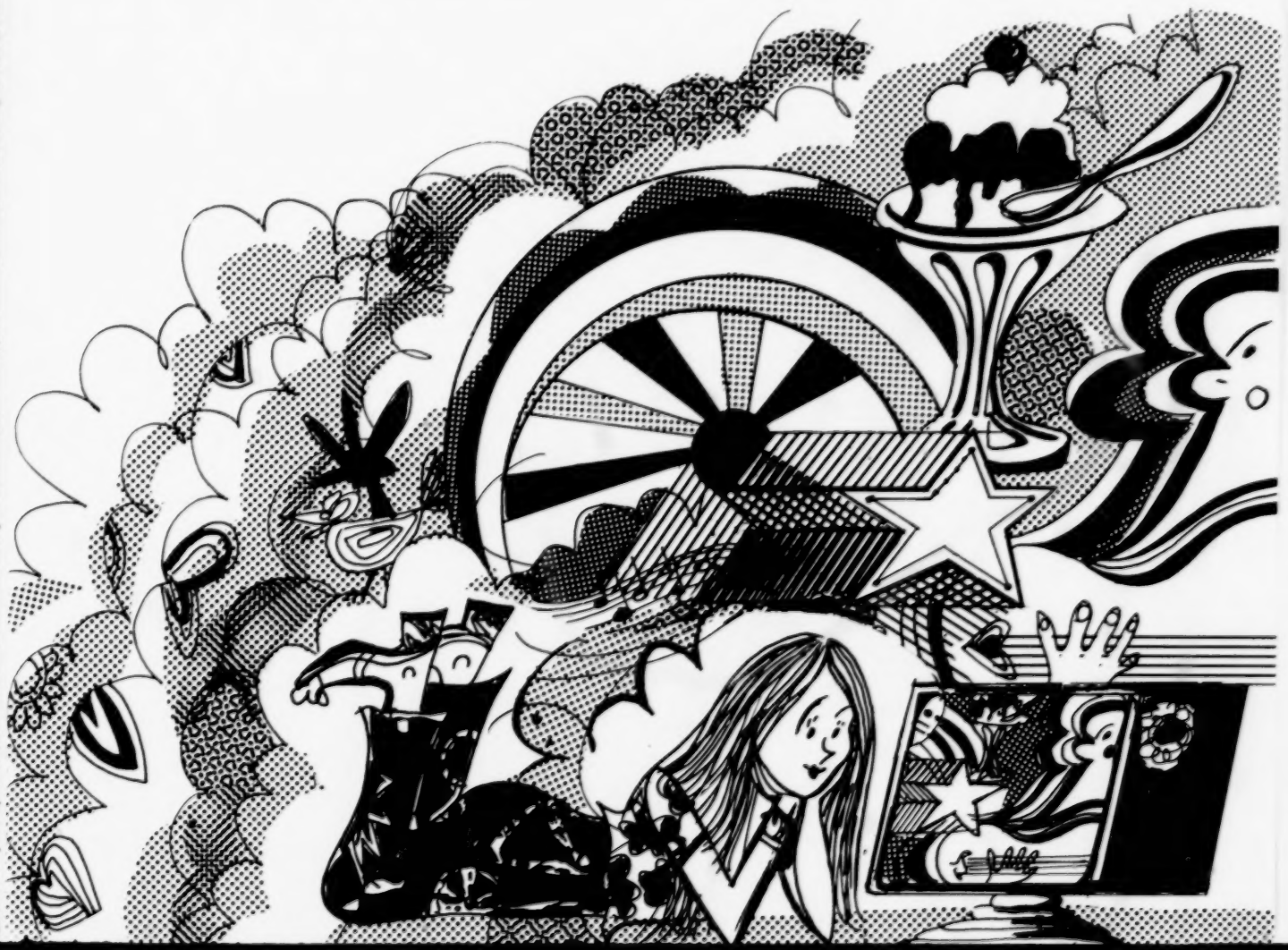
They insist on the vital necessity of some form of world order—they've seen too much of the world to believe that "they" (living across an imaginary line on a map) necessarily are bad, devious, or even very different from "us."

Because they have experienced the whole world via TV, in their electronically experienced eyes the killing of an enemy is not qualitatively different from the murder of a neighbor.

Curiously, they are very much like most first-generation youth born into a new country—often lashing out at elders' exotic beliefs and controls. They can't see why we aren't with it. And sometimes we can't either. In their instantaneous electronic culture, they can't empathize with our growing-up experiences, which occurred in the simpler industrial era where efficiency was a high priority goal achieved through linearity, sequence, and assembly-line techniques.

In the past, love and trust made it possible for people reared in one culture to move into another, transforming, without destroying, their earlier learning. Not knowing exactly *what* to teach their children to learn, they tried to teach them *how* to learn. Not knowing exactly *what* to teach their children to be committed to, they stressed the value of commitment. Today, parents and educators who are consciously struggling to straddle two cultures are taking a similar outlook.

Television is a phenomenon of the electronic era and an example of McLuhan's cool. Although there currently are more questions than answers about TV's neurological impact, the television medium seems to be more attention demanding than other media.



McLuhanisms:

TV is a totally new technology which demands different sensory responses—not merely a degraded form of print technology.

The television child is more earnest, more dedicated.

Most people find it difficult to understand purely verbal concepts. They suspect the ear; they don't trust it. In general we feel more secure when things are *visible*, when we can "see for ourselves."

TV has changed our environment—our new environment compels commitment and dedication.

A cool medium [e.g., TV] . . . leaves much more for the listener or user to do . . . if the medium is of low intensity, the participation is high. Perhaps this is why lovers mumble so.

Because the low definition of TV insures a high degree of audience involvement, the most affective programs are those that present situations which consist of some process to be completed. Thus to use TV to teach poetry would permit the teacher to concentrate on the poetic-process of actual making, as it pertained to a particular poem. The book form is quite unsuited to this type of involved presentation.

For example, the TV image offers three million dots per second, from which the viewer selects only a few dozen to make an image. In this process, each person must constantly close the spaces between his few dozen selected dots. Apparently, then, the medium demands involvement and participation of a complex neurological nature.

This involvement is akin to the closure needed to "get" a printed cartoon, a pun, a Seurat painting, but it is more complex because of its ceaselessness. Television seems to demand a creatively participant response—we must make the closure, filling the gaps with our past experiences. Thus, TV seems to be far from the passive experience we usually associate with watching TV.

Young children's rapt attention to *anything* on television may be more understandable in this context. Adults, too, are drawn to television *regardless of program quality* in higher percentages than they have been to any other medium. Perhaps adults turn to TV for diversion or escapism as a holdover from their "Saturday picture show" youth—or, perhaps, because the TV window to the world easily and inexpensively fulfills a yen for adventure or a need for information. Youth, however, seem to live in the "Global Village" (another McLuhanism) while adults seem more often to be spectators.

"We're gonna turn you on . . ." is part of "The Electric Company's" opening jingle. Television, the electronic medium itself, seems to do that very thing in terms of gaining attention and of forcing participation. But it does more. It may be useful to think of TV as *two* media: one, the nonhuman drawing power of the electronic dots . . . . . ; the other, the human and potentially humanely produced programming delivered by the dots. Today, TV programming must be ranked with parents, school, church, and community when considering the elements that shape personality and condition life styles. The preschool-age child, in his most formative stage, is especially susceptible to TV programming's influence. For example, a National Institute of Mental Health study

revealed that the behavior of preschool children changed for the worse when they were shown violent TV programs, and changed for the better when they were exposed to socially constructive ones. Over a four-week period, the aggressive-program watchers, who regularly watched "Superman," "Batman," etc., displayed increased physical or verbal aggression, or both. The pro-social watchers, who viewed "Misterogers Neighborhood"-type programs, were said to have improved their observance of rules, tolerance of delays, and persistence at tasks.

Children are turned on by television and do learn from it. Unfortunately, as network officials openly admit, commercial TV shows are judged by their power to keep viewers in front of their sets long enough to watch the ads. What the programs teach is incidental; what the ads teach is all-important. Every attention-gaining-and-holding technique known is utilized to this end. But as "Sesame Street" and "The Electric Company" have so creatively demonstrated, Madison Avenue techniques can be utilized for different ends—not for inciting children to demand certain cereals or certain toys, but for inciting children *to learn for the joy of learning*. In a sense, such outstanding series enable children to become as involved in learning processes as they were in discovering their key chains—chewing up the numbers and letters, being immersed in sounds and sights that delight, and participating in processes that TV lets *them* complete. That's cool . . . that's involvement of all of one's faculties.

The electronic era, in which youth are so at home, is at hand. Most American youth, busily absorbing the world and its problems at a phenomenal rate, are stranded between a permissive childhood and a conformist adulthood. They see change—ever

faster and all permeating—as the most characteristic feature of their world. They see adults as befuddled and docile, affected with what Paul Goodman has called a "nothing-can-be-done-about-it" disease. And they, more than their elders, are persistently asking: Who am I? Where do I fit? Does all this change necessarily equal progress? And does progress necessarily equal "the good, the true, and the beautiful"? Unawed by the two great innovations of our time—thermonuclear power and the computer—they anticipate an entirely new world predicated on using technology to multiply individual choices. Weaned on science fiction, having been with the men on the moon, their attitude is less likely to be "Can we do it?" and more likely to be "When we do it, will our lives be enriched?"

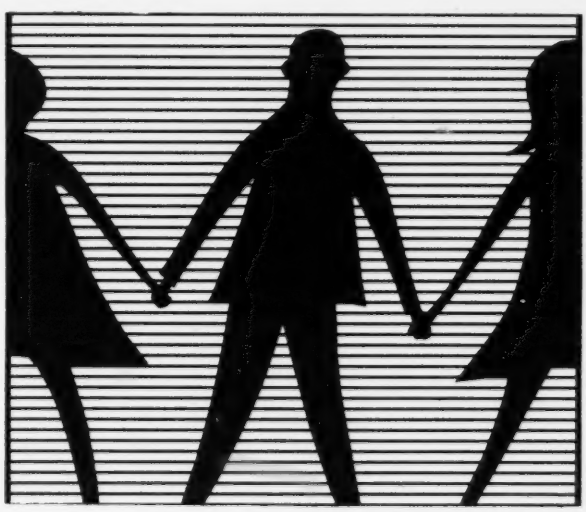
Hot: Adults, The Industrial Era, Education

Most of today's adults grew up believing that our society *chose* to emphasize industrial-age technology as its change agent, its core and focus, its chief initiator, its primary mode of creative expression and economic growth. We saw and applauded technology's benefits. Life itself was extended. Consumer goods were vastly increased. The ability to collect, store, and retrieve information was enormously increased. We were richer—better clothed, housed, and fed—than ever before. We saw more of the world—and more of its problems.

Although we did not exactly recognize technology as being a systematic method of working to achieve planned outcomes (the applied side of scientific development), we did comprehend the efficiency of the assembly line, with its fragmented tasks, and the effectiveness of large-scale organizational patterns and procedures. Through the years, we read and discussed (or tsk-tsked over) the compulsive consumer, the alienated automaton in the gray flannel suit, the hollow status-seekers, and the image manufacturers, but we usually believed the "man" being described was someone else. So we continued to build complex hierarchies everywhere, especially in big industry and in public institutions. Now we are beginning to wonder why the complicated social machine we've constructed to administer the industrial era makes us feel alone, alienated, less capable of creative and spontaneous work or play. In our most pessimistic moments, we self-diagnose the "nothing-can-be-done-about-it" disease.

The mechanisms of science and technology . . . appeal to us as the means whereby we gain control over our environment. What we fail to notice is that [they] also forge a new social environment with formidable powers of control over us.
—R. L. Heilbroner

We have modified our environment so radically that we must now modify ourselves in order to exist in this new environment.
—Norbert Weiner



Thermonuclear power, produced by World War II, and the computer, combining energy and thought . . . are not like the older inventions that enhanced man's thought. . . . These are Promethean: we rob energy from the sun, thought from the brain. . . . Neither of these innovations has yet found a mass market potential. But if and when they do, it will be fantastic. The changes brought by automobiles and freeways will be nothing compared to those to accompany the home computer hooked up to multimedia consoles.
—Harvey Wheeler

Youth derisively call us technocrats (see Roszak's definition), and occasionally it bothers us. Sometimes, we do feel as if we are actually part of a huge impersonal social machine, that all we know or can do is our own little bundle of expertise on the assembly line—the fastening of metal to metal, the "covering" of world history. But only occasionally. Most of the time, we're content with the establishment securely in the saddle. We correctly hold a dual vision of this period: it is concurrently (1) the best of all worlds and (2) crisis-ridden in every sector—schools, family, government, everything.

Focusing on education, our dual vision persists—cool and hot. Fifth graders as well as kindergarteners come tumbling home from school with all senses heightened—thrilled and chattering about their discoveries. Yet Silberman concludes that too many U.S. schools are mindless and joyless. Although a reverse trend is underway, most schools today still fit McLuhan's hot by emphasizing the linear ("line up in rows, girls on the right, boys on the left"), the sequential ("read the next chapter"; "pass on to the third grade"), the fragmented ("it's 10:15; put away your math and get out your science"), the over-dependence on a single sense (the eyes still have it and books beat all . . . or the ears have it and lectures lead).

Exceptional teachers, keenly aware of the damage that can be done by treating children as raw materials on an assembly line, have been successful in counteracting the dehumanizing effects of a technocracy. Although their verbalizations differ and in this age are usually a bit saltier, we hear them saying:

Education must help to develop self-realization in a culture that can foster alienation.

It must support efforts toward autonomy of the individual in a culture that can engender other-directedness.

It must help develop creative patterns of thought and action rather than the conformity that can overwhelm in a technocracy.

Young people need a sense of personal identity, a personal role in culture and a personal commitment.

Technocracy Defined

Technocracy is the social form in which an industrial society reaches the peak of its organizational integration; it is the ideal of modernizing, updating, rationalizing, planning, efficiency, social security, affluence, and power. It demands specially trained experts to run each of its segmented parts; each expert can communicate well only with another expert in his own field. Beyond the authority of science, there is no appeal. It is totalitarianism perfected because its techniques are more subliminal; it prefers to charm conformity from us by exploiting our deep-seated commitment to the scientific world-view and by manipulating the securities and creature comforts of the industrial affluence which science has given us. The three premises of the technocracy are (1) the vital needs of man are purely technical and subject to analysis, (2) the formal analysis of man's needs has now achieved 99 per cent completion, and (3) the experts doing the analysis must all be on the state and/or corporate structure payroll.
—Adapted from Theodore Roszak

And Applied to Schools?

It is not possible to spend any prolonged period visiting public school classrooms without being appalled by the mutilation visible everywhere—mutilation of spontaneity, of joy in learning, of pleasure in creating, of sense of self. The public schools—those 'killers of the dream', to appropriate a phrase of Lillian Smith's—are the kind of institution one cannot really dislike until one gets to know them well. Because adults take the schools so much for granted, they fail to appreciate what grim, joyless places most American schools are, how oppressive and petty are the rules by which they are governed, how intellectually sterile and esthetically barren the atmosphere, what an appalling lack of civility obtains on the part of teachers and principals, what contempt they unconsciously display for children as children.
And it need not be. . . . What makes change possible, moreover, is that what is mostly wrong with the public schools is due not to venality or indifferences or stupidity, but to mindlessness. (Italics added)
—Charles Silberman

The concepts of integration and harmony need to balance out the concepts of adaptation and adjustment which, without balance, lead to student docility, a premature form of the "nothing-can-be-done-about-it" disease.

Such teachers, to use Paul Goodman's beautiful words, "have never lost the child-like qualities of losing themselves gracefully in the splendor of the moment." They insist that childish perceptiveness and feelings are important, not as a past to be undone, but as some of the most beautiful powers of adult life that must be recovered.

In addition to the influences of the gifted teacher, many innovations have been introduced into schools to bring about less regimentation, more flexibility, more participatory coolness—modular scheduling, team teaching, computer assisted instruction, movable walls and open space, variable grouping, nongraded systems, television series to be seen or even occasionally produced. But if all these innovations were to disappear tomorrow, researchers tell us, American schools would hardly know they were gone.

Lewis A. Rhodes has proposed that the major reason for the ineffectiveness of these innovations is that "our creative thinking has been hampered by what we have assumed are the unchangeable 'givens' of the school situation. This rigidity has forced *the learner to become the variable*. He is squeezed and shaped to fit the system. If he cannot fit, he learns to conform and tunes out, or resists and drops out."

Some of the inviolable sacred cows have been time, space, personnel, and materials. Bell schedules, rectangular rooms, one teacher talking *to* 35 students, and a textbook as the guiding influence—these in our tradition-bound lives have been the constants. Breakthroughs that have occurred were nearly always a change at just one point in the environment.

It seems that if education is to become significantly more responsive to the learner, traditional spot-innovating will not suffice. Some or all of the invariable elements may need to be reclassified as variables and the learner returned to his rightful role as the center rather than as the squeezed and shaped conformist. What is efficient for the system may be the least efficient for the individual. Clearly, many youth are crying out, copping out, or dropping out as a way of telling us that many schools are not responsive to their needs and do not reflect their world. We know, however, that schools are slowly responding to the humanistic ends and concerns of society. In fact, we're beginning to get mad when accused of mindlessness—and our anger is healthy. We're beginning to consider seriously the big question: Toward what ends are we to educate? And most importantly, we're beginning to believe that the question is meant for us . . . not for some far-off echelon of administration.

McLuhanisms:

We look at the present through a rear-view mirror. We march backwards into the future.

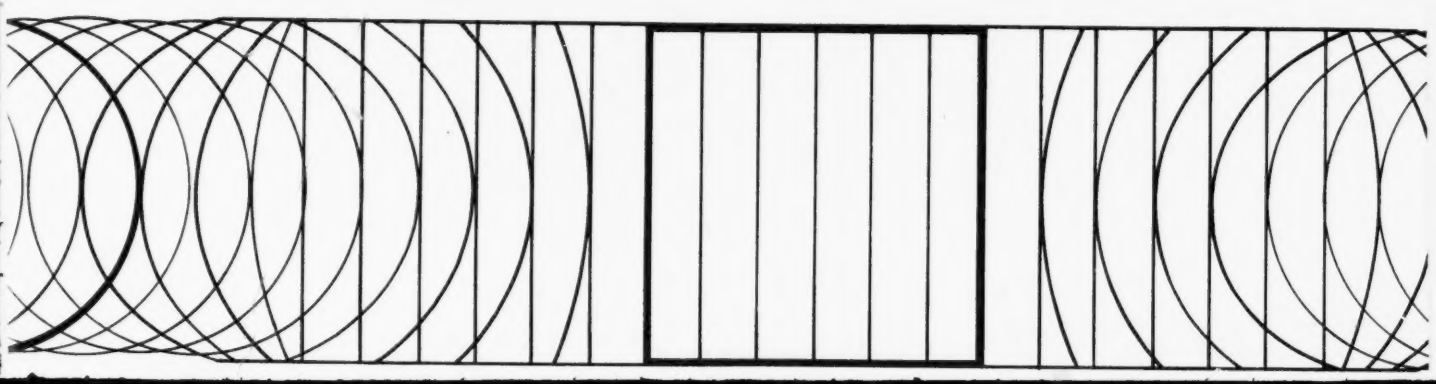
Our official culture is striving to force the new media to do the work of the old.

We approach the new with the psychological conditioning and sensory responses of the old.

The thing of it is, we must live with the living.
—Montaigne

Our thinking still binds us to the past—to the world as it existed in our childhood and youth. . . . We must, in fact, teach ourselves how to alter adult behavior.
—Margaret Mead

. . . in any complex situation, if only one variable is changed, no significant difference results. This is why over-all improvement in American education, after ten to fifty years of one-at-a-time "spot" innovations, has been relatively small. As one noted researcher concludes, there was no significant difference because there was nothing significantly different.
—*Toward a Significant Difference*



The ITV Paradox: Warmer Ends, Cooler Means

My evaluation of the Video Tape is as follows: It was good in Human Relations when we taped ourselves—we can see who and what we really are.
—A student

The TV doesn't scream at you and ask you questions when you are not prepared.
—A student

Our society is too mechanized and students tend to reject this. We'd rather have someone in front of us who is human. On the other hand, I think maybe my classroom teacher is a machine.
—A student

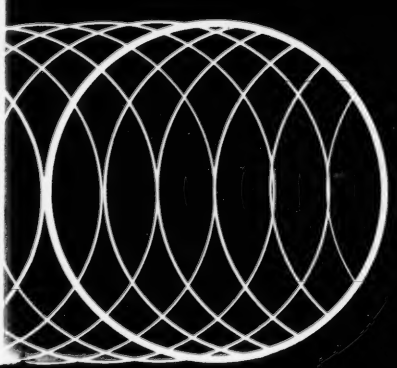
In schools run by humans, we have not succeeded in developing intensely humanistic learning environments—not in process, not in content, and not in perspective. . . . The instructional era now on the horizon is one of man-machine interaction. Will [it] dehumanize learning and teaching even more? The choice is ours.
—John Goodlad

Electronic communication can provide the medium upon which a new era of humanism can grow, if those who currently profess humane purpose but fear technology can readjust their expectations of the possible. The problem is not whether electronic technology itself will be allowed to 'do the whole job,' but rather, whether electronic technology can make it possible to do the whole job.
We have continually talked about what our technologies do rather than what they make it possible for people to do.
—Lewis A. Rhodes

Television must treat children with respect, must value their sensitivity and must engage them in the adventures of feeling, of knowing and of doing.
—An ITV producer

As schools increasingly avail themselves of media instruction and technological development, they are correspondingly freed from the type of conformity these mass type media seem to foster. Flexibility becomes the key to the problem . . . for learning . . . for administrative organization . . . in use of space and materials.
—An administrator

The increased use of instructional technology in school and college aims: (1) to change the role of the teacher so that he can put increased emphasis on those learning processes which require close personal relationships with students, and (2) to design a learning and teaching environment in which the learner has more self-direction in the management of his own development.
—Edgar Dale



Goodlad puts us on the spot: he says it's up to us whether ITV is to humanize or further dehumanize the learning environment.

Rhodes puts us on the spot: he asks us to talk about what ITV can make it possible for us to do.

Dale puts us on the spot: he wants us to free ourselves from some of our traditional duties so we can develop close personal relationships with our students—so close that we can trust them with some self-direction of their own lives.

Looked at closely, these gentlemen are restating the big question in education. *Toward what ends are we to educate?* They're saying that we must ask ourselves why we are doing what we are doing, not because everything we're doing in education is necessarily wrong or mindless, but because everything needs to be questioned in light of the new conditions created by our moving into the electronic age. What are the values and the practices of the 70's and 80's to be? Is the swelling upswing toward more humanistic and mindful concerns to be reflected, possibly even led, by education?

What are the concerns that seem to be overlooked by so many industrial-age adults? In trying to answer this question, the ASCD executive committee analyzed and summarized the thinking of many people who are consciously undertaking the task of reshaping society by defining more humane ends and by attempting to provide better conditions and arrangements for human fulfillment. Here, briefly summarized, are the seven new (or renewed) values or ends which they identified:

1. *Immediacy*. Concern for the quality of immediate experience; honoring now, the present; joy

2. *Austerity*. Concern for spending time and money on first things; investing in what really matters; essentiality

3. *Authenticity*. Concern for truth, for evaluation of facts and feelings; telling it like it is; honesty

4. *Openness*. Concern for new possibilities in every area of human existence; valuing the new, the unfamiliar, the untried; risk-taking

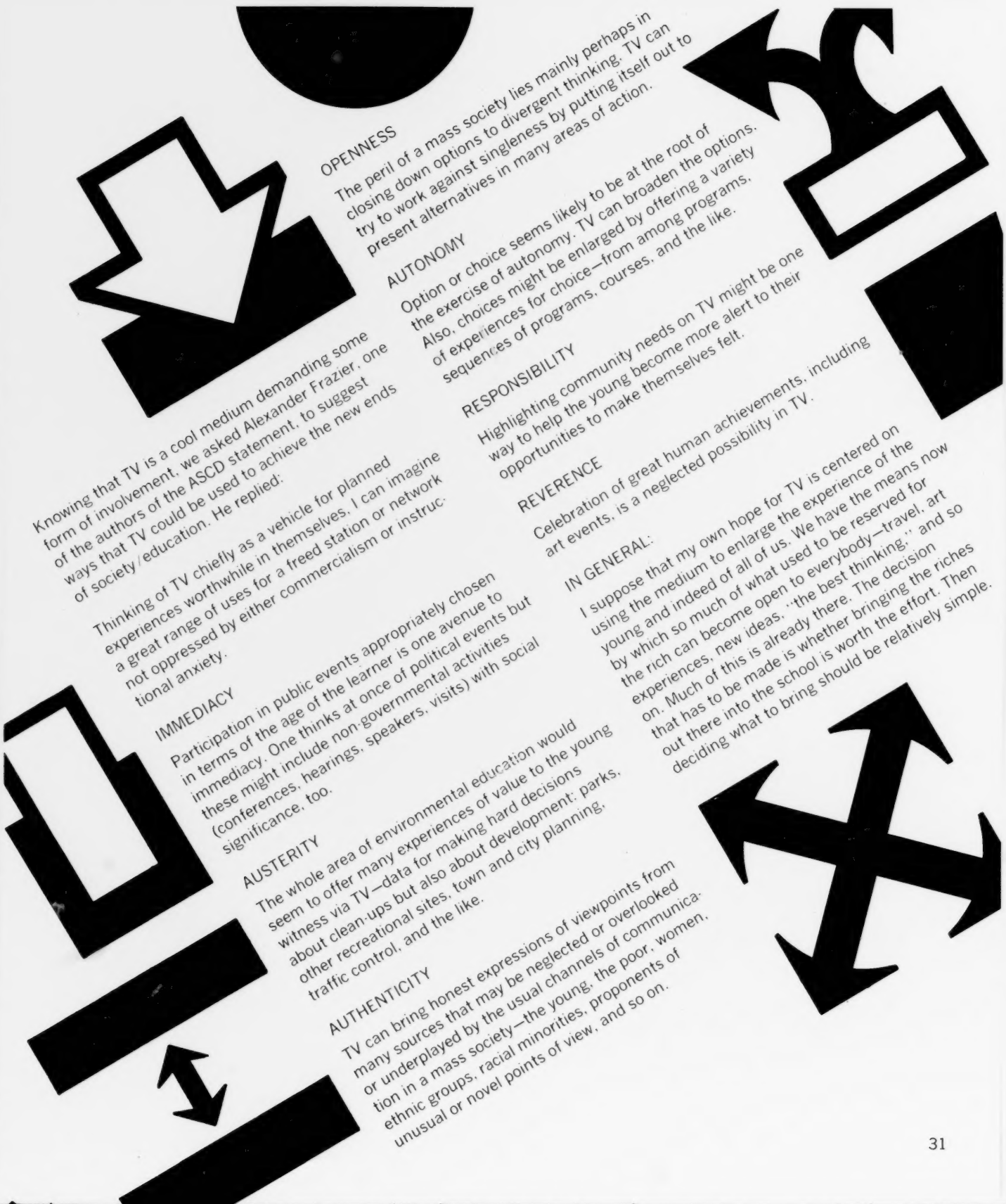
5. *Autonomy*. Concern for "universal emancipation" from institutional, social, or political pressures; deciding for oneself; selfhood

6. *Responsibility*. Concern for living by values that transcend national boundaries, reach out to the world; acting in terms of what one knows to be right; community

7. *Reverence*. Concern for meaning in human experience; searching for the significant; quest for the sacred.*

Theoretical, hypothetical, ethereal? Perhaps . . . but not mindless, not joyless, not cold in the old sense, but cool in the new. These ends seem to straddle our two cultures, bolstering the shaky values of the old and incorporating the future-oriented insights of the new. They cry out for commitment, for involvement.

*This statement appears in *A Man for Tomorrow's World*, ASCD, NEA, 1201 Sixteenth Street N.W., Washington, D.C., 20036. The authors heartily recommend the book.



Knowing that TV is a cool medium demanding some form of involvement, we asked Alexander Frazier, one of the authors of the ASCD statement, to suggest ways that TV could be used to achieve the new ends of society/education. He replied:

Thinking of TV chiefly as a vehicle for planned experiences worthwhile in themselves, I can imagine a great range of uses for a freed station or network not oppressed by either commercialism or instructional anxiety.

IMMEDIACY

Participation in public events appropriately chosen in terms of the age of the learner is one avenue to immediacy. One thinks at once of political events but these might include non-governmental activities (conferences, hearings, speakers, visits) with social significance, too.

AUSTERITY

The whole area of environmental education would seem to offer many experiences of value to the young witness via TV—data for making hard decisions about clean-ups but also about development: parks, other recreational sites, town and city planning, traffic control, and the like.

AUTHENTICITY

TV can bring honest expressions of viewpoints from many sources that may be neglected or overlooked or underplayed by the usual channels of communication in a mass society—the young, the poor, women, ethnic groups, racial minorities, proponents of unusual or novel points of view, and so on.

OPENNESS

The peril of a mass society lies mainly perhaps in closing down options to divergent thinking. TV can try to work against singleness by putting itself out to present alternatives in many areas of action.

AUTONOMY

Option or choice seems likely to be at the root of the exercise of autonomy. TV can broaden the options. Also, choices might be enlarged by offering a variety of experiences for choice—from among programs, sequences of programs, courses, and the like.

RESPONSIBILITY

Highlighting community needs on TV might be one way to help the young become more alert to their opportunities to make themselves felt.

REVERENCE

Celebration of great human achievements, including art events, is a neglected possibility in TV.

IN GENERAL:

I suppose that my own hope for TV is centered on using the medium to enlarge the experience of the young and indeed of all of us. We have the means now by which so much of what used to be reserved for the rich can become open to everybody—travel, art experiences, new ideas, "the best thinking," and so on. Much of this is already there. The decision that has to be made is whether bringing the riches out there into the school is worth the effort. Then deciding what to bring should be relatively simple.

In the following chapters, dozens of available ITV series that attend to these concerns will be described. In our old-fashioned awe of mass media, in our persistent and justified horror of every child's being on page 12 of his McGuffey Reader at 10:15 A.M. on September 16, we must not blind ourselves to the idea of using technology as an ally. The electronic era is upon us. Whether or not we harness its enormous powers to humane ends is up to us.

Instructional television, although useful in its present spot-innovation state, will more nearly attain its potential when teachers and students see it as a multiplier of their own individual choices. ITV delivery systems now exist (e.g., VTR's, cassettes, and discs) for making programming instantaneously available when needed, thereby enabling schools to be more responsive to learners' needs. Today's learning centers, with ITV as one accoutrement, are a beginning step toward seeing the student as an individual capable of more self-direction than we have allowed him before, but at the same time, more in need of warm, caring human teachers than ever before. And, possibly, as teachers we are more in need of becoming cool—of caring, responding, taking part in, going out to, finding meaning in, resolving, befriending, getting with it. We say we want to become . . . but we don't have time. ITV can give us time—and more.

As I talk with students about what it is they want in teachers, they say in their own fumbling words, "I want some authentic human being there in front of me. I want to feel that I'm in the presence of someone who is most *fully himself*, who is some kind of genuine person, who doesn't kid me, or deceive me or play games with me even in the best of intentions. I want to feel I'm in the presence of a human being." And that cry for encounter is a desperate cry, which can only be answered by some kind of authentic response that we ourselves make.
—Allan Glatthorn

. . . we must see technology as an ally, a force that can as easily enhance as diminish the human spirit.
—George Leonard

TV in the classroom is a great improvement over the usual teaching methods, because *kids enjoy it and devote their attention to it.* It doesn't seem like schoolwork because it's not usually associated with school, but with leisure time.
—A student

Television in the classroom? It's better than hearing teachers talk—TV gets through the mind better.
—A student

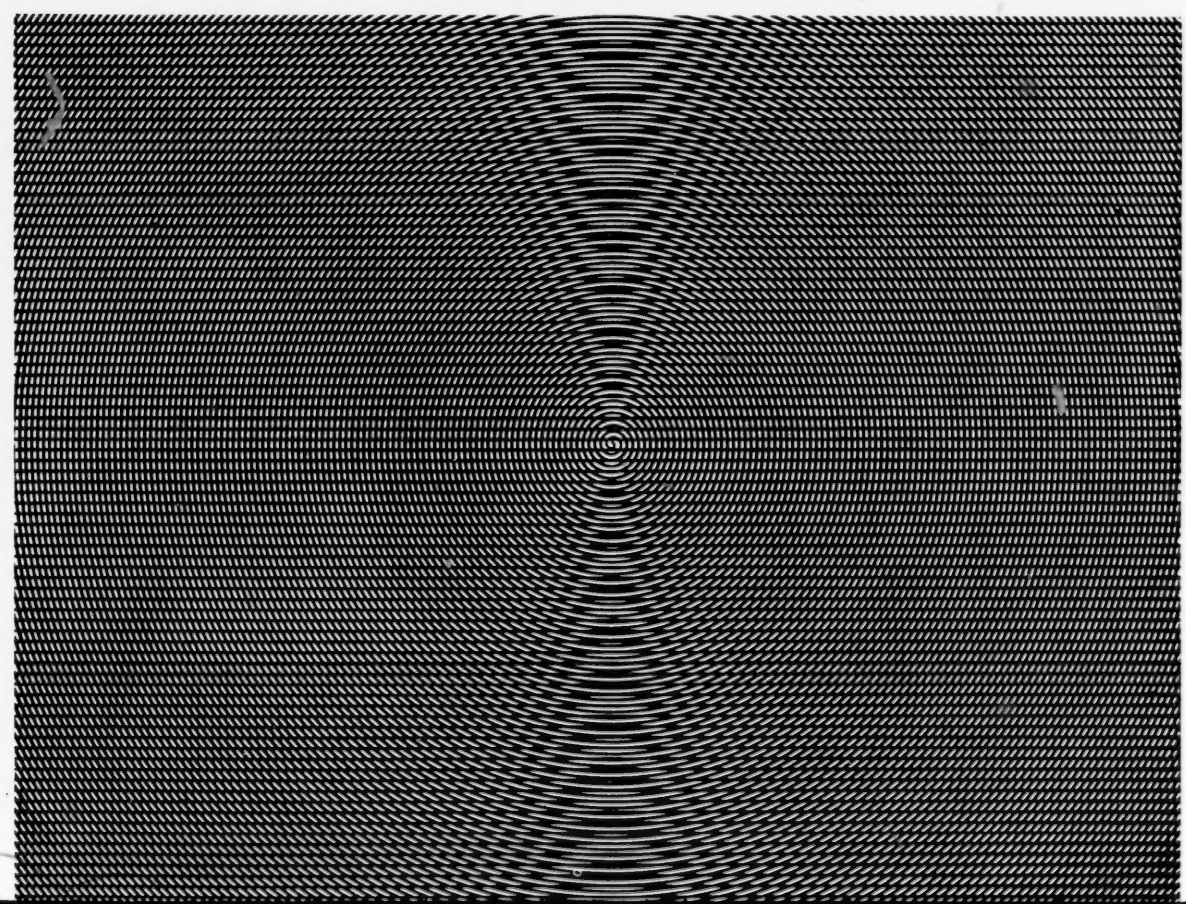
Yes, TV in class is good—it helps to think better.
—A student

It livens up the class, good to get off the subject, it changed the same old thing, but getting down to the basics it was school work. Better than reading a book; all you got to do is stay awake and you will get something out of it.
—A student

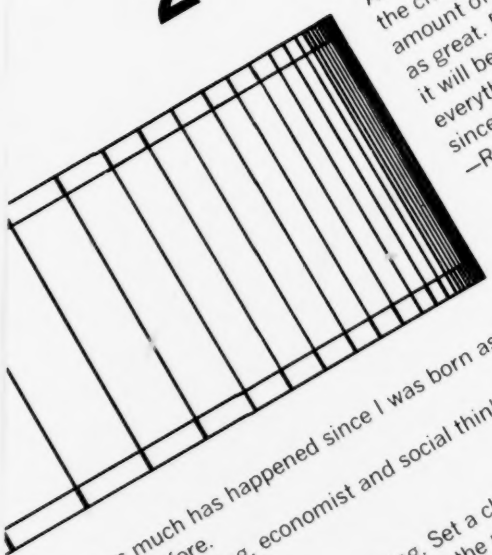
Educational TV can be very helpful to teachers and students. I think educational TV is a very good idea to have because it can cover more material than a teacher can. It also is helpful because they have equipment, whereas it may not be available to the teacher at the time she needs it.
—A student

When we see TV, the teacher pays more attention to me instead of just talking to the whole class.
—A student

If the educational system is irrelevant, as Marshall McLuhan says; if it shields children from reality, as Norbert Weiner says; if it educates for obsolescence, as John Gardner says; if it does not develop intelligence, as Jerome Bruner says; if it is based on fear, as John Holt says; if it avoids the promotion of significant learnings, as Carl Rogers says; if it induces alienation, as Paul Goodman says; if, in short, it is not doing what needs to be done; it can be changed; it *must* be changed.
—Postman & Weingartner



2 itv and knowledge



At the rate at which knowledge is growing, by the time the child born today graduates from college, the amount of knowledge in the world will be four times as great. By the time that same child is fifty years old, it will be thirty-two times as great, and 97 percent of everything known in the world will have been learned since the time he was born.
—Robert Hilliard

You can't possibly keep in touch with all you want to.
—Dr. Ralph Stohler

The trouble ain't that people are ignorant; it's that they "know" so much that ain't so.
—Josh Billings

We all have our different ignorances.
—Will Rogers

* * * * *

. . . 90% of all the scientists who ever lived are now alive. . . .

Today's "fact" becomes tomorrow's misinformation. . . . Tomorrow's school must therefore teach not merely data, but ways to manipulate it. Students must learn how to discard old ideas, how and when to replace them. They must, in short, learn how to learn.
—Alvin Toffler

The best that can be said of you, assuming that you remember what you were told and read, is that you are a walking encyclopedia of outdated information.
—Postman and Weingartner

Almost as much has happened since I was born as happened before.
—Kenneth Boulding, economist and social thinker

Knowledge begins with wondering. Set a child to wondering and you have put him on the road to understanding.
—Samuel Langley

The foundations of any subject may be taught to anybody at any age in some form.

* * * * *

One cannot "cover" any subject in full—not even in a lifetime, if coverage means visiting all the facts and events and morsels. Subject matter presented so as to emphasize its structure will perforce be of that generative kind that permits reconstruction of the details or, at very least, prepares a place where the details, when encountered, can be fitted.
—Jerome Bruner

The Knowledge Explosion

Imagine a clock face with 60 minutes on it. Let the clock stand for the time men have had access to writing systems. Our clock would thus represent something like 3,000 years, and each minute on our clock 50 years. On this scale, there were no significant media changes until about nine minutes ago. At that time, the printing press came into use in Western culture. About three minutes ago, the telegraph, photograph, and locomotive arrived. Two minutes ago: the telephone, rotary press, motion pictures, automobile, airplane, and radio. One minute ago, the talking picture. Television has appeared in the last ten seconds, the computer in the last five, and communications satellites in the last second. The laser beam—perhaps the most potent medium of communication of all—appeared only a fraction of a second ago.

* * * * *

Of course, this frustrating state of affairs applies to our education as well. If you are over twenty-five years of age, the mathematics you were taught in school is "old"; the grammar you were taught is obsolete and in disrepute; the biology, completely out of date, and the history, open to serious question.
—Postman and Weingartner

What is worth knowing?

With knowledge proliferating so rapidly that no one can keep up with more than a small fraction of a field, how can we know what to teach? How can we decide what learners need to know in the face of the near certainty that many of today's facts will be outdated next month, next year, or in the next decade? How can we possibly predict what students will need to know to survive in an unpredictable future—a future many prophets are claiming is on a collision course, people against each other, societies against themselves, one civilization against another, and all against the universe?

The selection of up-to-date and relevant content to be taught in schools has always been problematic. In the era of exploding knowledge, however, the identification of what students need to know becomes even more difficult.

There is no quarrel over some of what we now teach. Yesterday's, today's, and tomorrow's child needs experiences designed to help him achieve literacy and cultural identity. He needs to learn how to be a useful participant in the world of work and play, and he needs to be introduced to the first steps in all the valued fields of knowledge.

The teaching of such fundamental content has been augmented, often very creatively, by hundreds of instructional television series in the United States. In language arts alone, for example, more than 30 ITV series are currently being distributed by television libraries. Some of these series reflect very traditional approaches to very traditionally accepted and familiar subject matter. Others, and here's where the quarrels often occur, reflect newer approaches to answering the question "What's worth knowing?" This range of approaches available on tape is one of the healthiest aspects of the growth of ITV. It enables television stations to respond to the advice of teachers in the viewing area as to the approaches and content best suited to the needs of local students; it thus eliminates

the spector of a national curriculum being imposed electronically.

In this chapter, three of the more popular approaches to content selection and organization are described: (1) a structural approach, (2) a multidisciplinary approach, and (3) a process-as-content approach. None of these is really new; but over the past decade many new courses of study based on these three approaches have been developed. Television has proved to be enormously helpful in implementing new curricula that were not designed at the local level.

Examples of ITV series based on each of these new approaches will be given. Hopefully, the examples will encourage readers to obtain the catalogues of the ITV libraries, which contain complete descriptions of over 300 series—a veritable smorgasbord of different contents and approaches. The ITV library catalogues may be borrowed from the public television station nearest you or may be ordered directly from the libraries. The two largest libraries are Great Plains Instructional Television Library (P.O. Box 80669, Lincoln, Nebraska 68501) and National Instructional Television Center (Box A, Bloomington, Indiana 47401).

A host of educational critics—laymen and professionals, young and old, liberal and conservative—are demanding that educators apply the criterion of relevance to the selection of content. All three approaches described in this chapter focus on what the learner needs to know to get along in his world, but each does so in a different way.

The Structural Trend

In the 1960's, the task of developing many courses of study in nearly all subjects was taken over by scholars and curriculum specialists. Teachers had mixed feelings about this: they were reluctant to give up this key responsibility, yet they were happy to have new

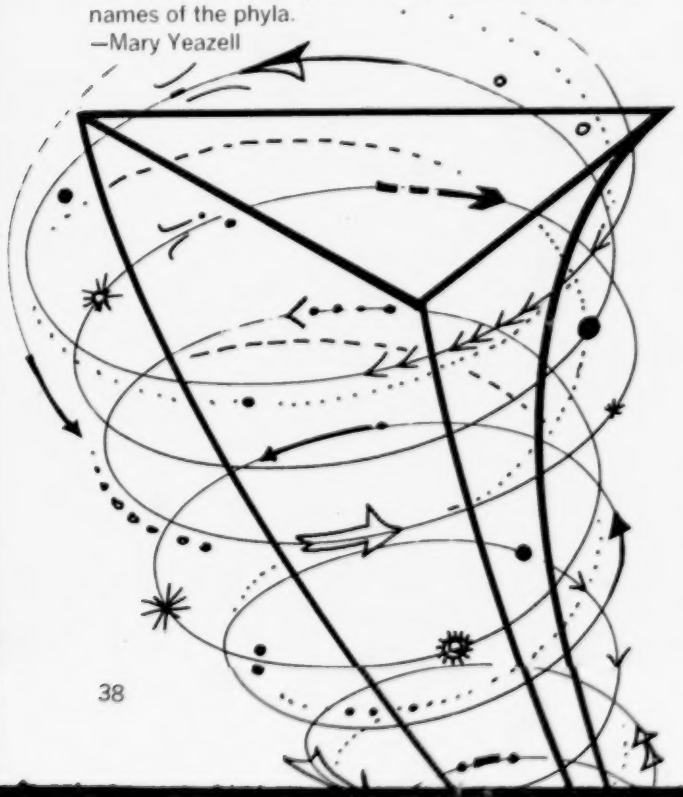
Some out-dated *concepts which are inappropriate* for today's curricula whether in classrooms or mediated via TV:

1. The concept of absolute, fixed, unchanging "truth," particularly from a polarizing good-bad perspective.
2. The concept of certainty. There is always one and only one "right" answer, and it is absolutely "right."
3. The concept of isolated identity, that "A is A" period, simply, once and for all.
4. The concept of fixed states and "things," with the implicit concept that if you know the name you understand the "thing."
5. The concept of simple, single, mechanical causality; the idea that every effect is the result of a single, easily identifiable cause.
6. The concept that differences exist *only* in parallel and opposing forms: good-bad, right-wrong, yes-no, short-long, up-down etc.
7. The concept that knowledge is "given," that it emanates from a higher authority, and that it is to be accepted without question.

—Postman and Weingartner

Hebrew and Eastern mode of thought tackles problems and resolution at the outset of a discussion. The entire message is then traced and retraced, again and again, on the rounds of a concentric spiral with seeming redundance . . . one can stop anywhere after the first few sentences and have the full message, if one is prepared to "dig" it . . . the concentric with its endless intersection of planes is necessary for insight. In fact, it is the technique of insight . . . the redundant form is inevitable to the electric age.
—Marshall McLuhan

Most of the new programs . . . rest upon the notion of the structure of a discipline. Structure is defined in Bruner's work and in others as the fundamental ideas of a discipline; and Bruner points out that to know the structure of a thing is to know how it is related to other things; so that the revolution has come about in the content of subject matter which is taught to the child—that is, he is given exercises and experiments to help him learn the structure of matter, of energy, of the human body, the number system, and his language, rather than learning about how the refrigerator works, or how to diagram a complex sentence or the names of the phyla.
—Mary Yeazell



school programs that worked—programs based on *structural principles*.

Jerome Bruner's popular book *The Process of Education* is credited with giving impetus to the structural trend. Two of Bruner's propositions have become axiomatic to structuralists: (1) the curriculum of a subject should be determined by the most fundamental understanding that can be achieved of the underlying principles that give structure to that subject, and (2) these fundamental understandings can be taught to anyone at any age in some academically honest form.

Scholars in nearly all the disciplines became intrigued by the idea of communicating to youth the joy they found in their particular fields—the order they could bring to disconnected observations. They set about identifying powerful basic generalizations that would be simple enough for a youngster of five to grasp, yet would be potent enough to be used in organizing vast amounts of data. In conjunction with teachers and curriculum specialists, they began developing extensive school programs in which key generalizations were visited over and over again throughout the school years. At each visitation, children were expected to flesh out their skeletal understandings and to deal with ascending levels of abstraction and complexity.

Subject matter newly organized in this way was sometimes nearly unrecognizable by teachers, many of whom were convinced of the value of a structural approach but were unsure of how to begin. Hence, television was used for disseminating many of the new curricula, providing needed in-service help to teachers as well as dramatic experiences for students. A good example of this is "Patterns in Arithmetic," a series developed around new structural ideas in mathematics. Because children differ in their readiness to assimilate an idea, a spiral organization of subject matter is used to help *all* children assimilate number concepts. A concept is introduced, not once, but several times—appearing, disappearing, and

reappearing at various points in the student's curriculum until his maturing intellect suddenly latches on.

Television has proved to be a valuable communication mode for implementing newly structured knowledge in many fields—the "new" social studies, the "new" basic movement education, the "new" grammar, etc. An added plus comes when it provides students and teachers with an opportunity to view the structurers themselves. Because of the technical resources that television opened, great scholars, scientists, and artists can now speak to young children as easily and honestly as they can to graduate students.

The Multidisciplinary Trend

To know something is to see it in relationship with other things. In the structural approach, the "other things" are within the discipline. In the multidisciplinary approach, an effort is made to interrelate concepts from different disciplines. Most of us remember the excitement we felt when something we had learned in studying one subject in school suddenly became meaningful to us in studying another subject. . . . Eureka! Through the years, schoolmen have periodically attempted to assist learners in escaping the "ice-cube-tray" curriculum by introducing various correlated or integrated organizations of subject matter, e.g., an English–social studies correlation in junior high school. Theoretically, such plans are ideal; in practice, however, they are difficult to implement. Locating a single teacher with the background and abilities to conceptualize a meaningful correlation is almost impossible; and when two or more teachers are to pool their talents, often each falls back on his "own" subject in isolation.

Meaningful correlations, designed by experts in several fields, can come ready-made via TV. For example, one delightful series for children beautifully

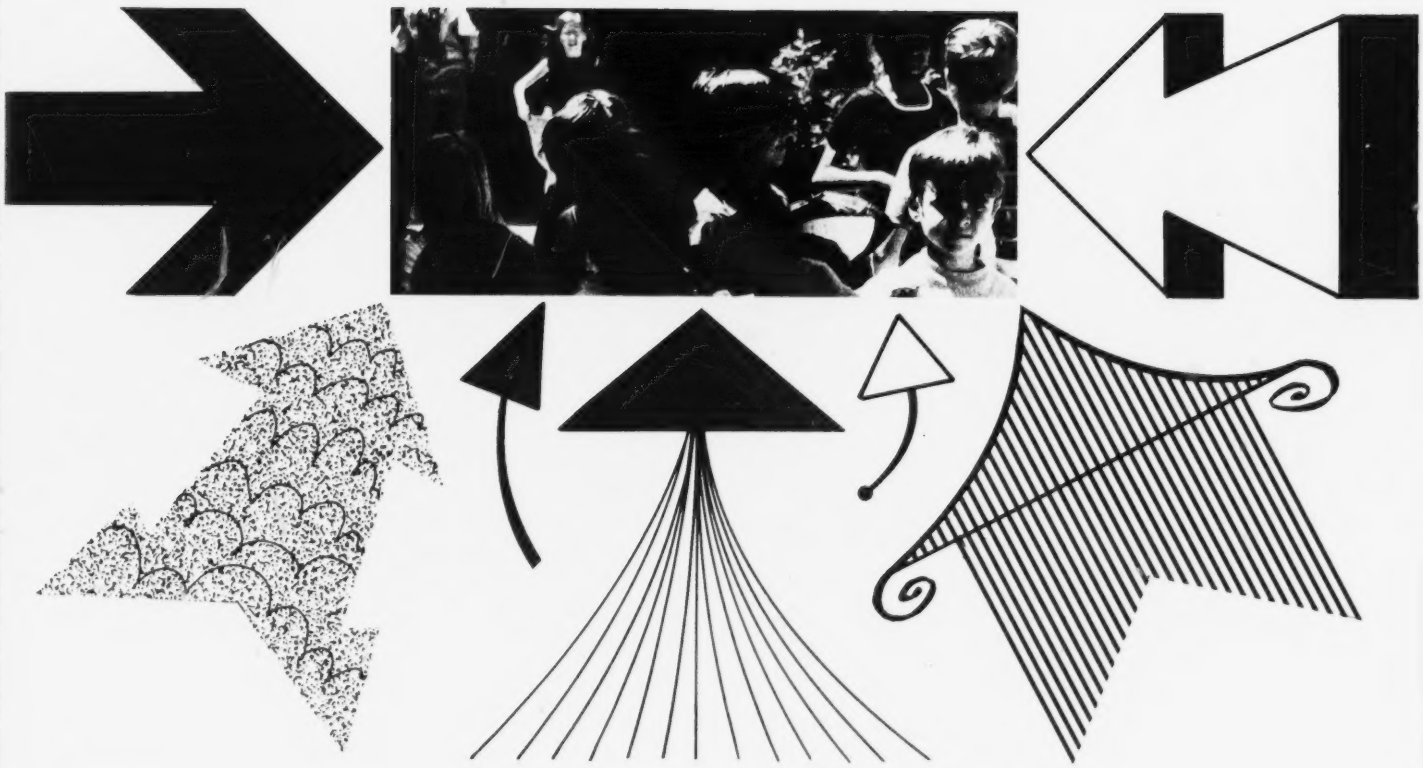
Nowadays, a school administrator cannot be respectable at school meetings unless he can say that his school, too, has BSCS, PSSC, SMSG, UICSM, FLES, modern math, structural linguistics plus team teaching, and an ungraded primary.
—Mary Yeazell

The teacher is not only a communicator but a model. Somebody who does not see anything beautiful or powerful about mathematics is not likely to ignite others with a sense of intrinsic excitement of the subject. A teacher who will not or cannot give play to his own intuitiveness is not likely to be effective in encouraging intuition in his students . . . television and film might expand the range of identification figures—models of greatness—within the special limits imposed by one-way communication.
—Jerome Bruner

Any subject taken in depth at once relates to other subjects. . . . Continued in their present patterns of fragmented unrelation, our school curricula will insure a citizenry unable to understand the cybernated world in which they live.

* * * * *

The young student today grows up in an electrically configured world . . . not of wheels but of circuits, not of fragments but of integral patterns. . . . At school, however, he encounters a situation organized by means of classified information. The subjects are unrelated.
—Marshall McLuhan



blends experiences in art, music, movement, math, and science. Another focuses on appreciation of the term *I am*. A third, although labeled social studies, investigates mankind's basic needs. Series designed to combat prejudices, pollution, drug abuse, etc., cut across traditional subject matters in a way many teachers haven't the time or resources to do. As one teacher put it, "This series helps my students (and me) in getting it together."

One time-honored approach to eliminating some of the dividers in the ice cube tray is to design a problems-centered program of study. Meaningful problems require students to search for data and processes from several disciplines. The following example may provide some insight into how TV can be used in a problems-oriented program. The problems are drawn from Postman and Weingartner's list of "current problems that taken together and left unresolved, mean disaster for us and our children."

Excerpts from Descriptions of Different ITV Series

Current Problems

The mental illness problem (the number one health problem in the United States):
the suicide problem (the second most common cause of death among adolescents)
the "damaged children" problem (parental beating is the most common cause of infant mortality in the United States)

1. ". . . engages the minds and feelings of eight-to-ten-year olds . . . deals compellingly with social, emotional, and physical problems . . . takes an affective approach . . . shows that an open-minded understanding of human feelings is needed to balance factual knowledge . . . develops awareness of, the ability to consider, and a willingness to accept [one's] own feelings and the feelings of others."

2. ". . . considers personal relationships, self-understanding . . . relates self-control to personal freedom and responsibility."

3. ". . . explores with the child the wonder of his mind and body."

4. ". . . is a course to free each child from compulsive pressures and increase the directions from which the child views his position as a human being . . . is experiences in being and becoming."

5. ". . . aids the viewer in accepting loneliness as he accepts adulthood but at the same time helps him to become aware of the loneliness in others, and offers ways of reaching out to them."

The crime problem

1. ". . . shows dramatized vignettes of vandalism (based on real situations), student reactions to the vandal and his victim, and discusses how vandalism affects student life."

2. ". . . focuses on the problems of cities . . . and how students can bring about changes."

3. ". . . focuses on children and the law."

The problem of misinformation—"the credibility gap," "news management"

1. ". . . stresses analysis of the news and in-depth understanding of selected current news stories."

2. ". . . places current events in the frame of reference of the student. It highlights world events that have major political, economic, scientific, or cultural significance . . . relates the news to the total world situation . . . may be compared with a weekly 'cover story'."

3. ". . . is a study of the newspaper which should open new avenues for the student . . . teaches him to read more widely, listen more critically, weigh issues, make objective decisions."

4. ". . . looks at TV today . . . the structure, problems, and facilities."

The civil-rights problem

1. ". . . stresses an open-ended approach to problems resulting from differences in race or ethnic group, religion, socioeconomic class, and creed . . . is designed to promote and support better human understanding and human relations."

2. ". . . explores racial tension and conflict in America . . . provides information about the social and economic situations of black Americans and assists young people in understanding others and gaining insight into their own feelings and motives."

3. ". . . takes the viewer from the African origins of the Black race . . . through the American Civil War . . . to today's Black revolution."

4. ". . . asks questions: What does race mean? Why are people prejudiced? How does prejudice come out? What is a minority group? What does it mean to be a native American . . . a Japanese American . . . a Mexican American . . . a Black American? Why can't people get along? How can a person not be prejudiced?"

The sex problem

1. ". . . presents scientific information and enlightened opinion on . . . the troubling maze of human sexuality."

2. ". . . stresses personal relationships and sex education."

The drug problem

1. ". . . presents vital facts about drugs, depicts the experience of drug use, and examines drug abuse as it exists today."

2. ". . . is correlated with two others on drug abuse, one for the general community, and one for teachers. The student series is not the ordinary type of drug education program. Rather than placing strict emphasis on drugs and their harmful effects, such factual material is interwoven with behavioral elements. . . . The series has no teacher and no textbook . . . peer teaching is utilized . . . the concepts of self-identity, decision-making and alternative solutions to pressure are stressed."

The population explosion:
the birth control problem
the abortion problem
the housing problem
the traffic and parking problems
the food and water-supply problem
the who-am-I and what-does-it-all-mean problem

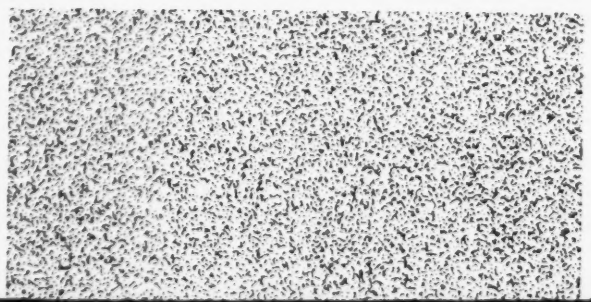
1. ". . . is concerned with man's environment—an environment that is in serious trouble. Children are encouraged to think creatively about such topics as the spacing of people, recycling of waste materials, and the design of new systems of transportation . . . and warned that such planning must eventually be modified by the realities of economics, property rights, and the will of the majority."

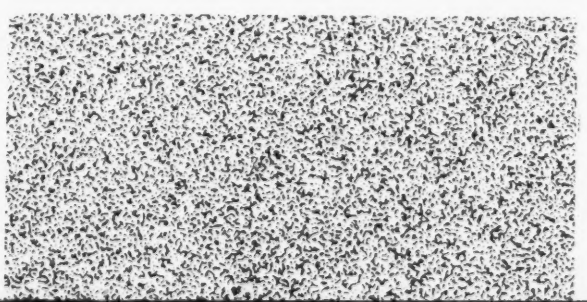
2. ". . . focuses on economics and concludes with 'People, People People: Bane or Blessing' which stresses a balance between human and other resources."

3. ". . . examines the concept of change from many viewpoints—the way people live and work now, as they did in the past, and how they may in the future. It focuses on transportation, housing, power, water, new answers for basic needs."

The International scene:
the Bomb problem
the Vietnam problem
the Red China problem
the Cuban problem
the Middle East problem
the foreign-aid problem
the national defense problem,
and others thought of as stemming from the communist-conspiracy problem

The previously mentioned current events series focuses on these issues. In addition, a series of "yearender" newsfilm compilations is available. These consist of newsfilm from the recent past edited into year-by-year presentations by United Press International. A short (22-25 minute) program of each year since 1962 is available.



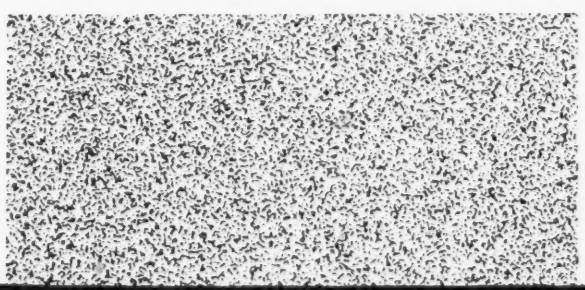


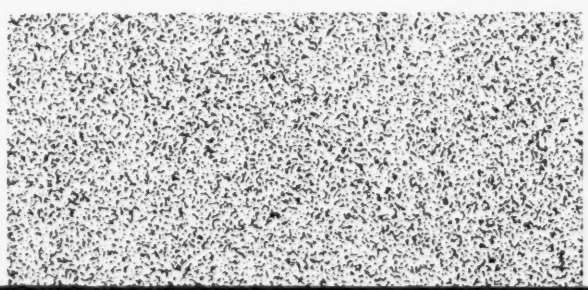
These are samples of the many ITV series that could be used in problems-centered curricula. Commercial TV also is a rich source of additional programming. For example, on *one* commercial television station, in *one* six-month period, the following *local* productions (not news or network) were aired:

The Bombing of Vietnam
Available Drug Information
Rapline on Drugs
Low Income Housing
The Mass Transit Levy
Violent Crime & the Use of Guns
Crime and Punishment
Driving and Drinking
India and Pakistan
Equal Opportunity Day
Mental Hygiene & Corrections
The Dept. of Environmental Protection
Preventing Future Vietnams
VD and Parental Responsibility
Apartment Owners on Open Housing
Illegal Mob Violence
Firearms and Crime
Abortion Law Reform
Drug Pushers Beware
The Drinking Age in Ohio
The Commission Report on Marijuana
Return Your Bottles
Environmental Protection in Ohio
The School Busing Issue
The Courts and Drug Pushers
Parks and Recreation
Seminar on Crime
Natural Resources Uses Recycled Paper
New Federal Funds to Fight Crime
The UN and China
Alcoholic Treatment Centers
Mental Health and New Tax Money
The Advertising of Prescription Drugs
What is a "Top Secret" Government Document?
The Task Force Report on Racism
Pot Costs Too Much!
Violence and the Mentally Ill
Ohio on Pollution
The Parking Problem
The Sale and Use of Explosives

Surely such topics must be included in curricula if schools are to be an extension of the meaningful mainstream of life instead of an unrelated backwater. Television can provide a springboard for the rational discussion of moral, social, and political problems.

If you're not part of the solution, you're part of the problem.
—Anonymous





Today we must conceive of the educated person, almost exclusively, as the one who comes out of school eager and able to go on teaching himself.
—M. L. Story

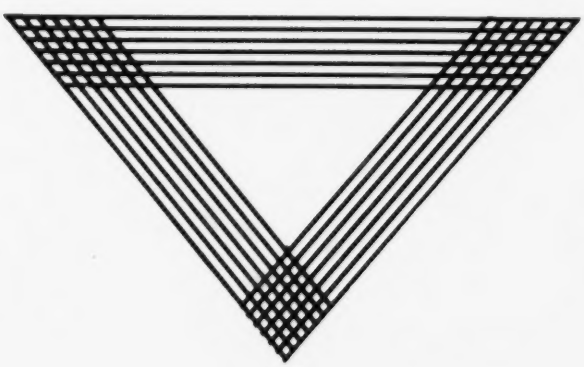
The result of the educative process is the capacity for further education.
—John Dewey

The great difficulty in education is to get experience out of ideas.
—George Santayana

There is no learning without a learner. And there is no meaning without a meaning maker. In order to survive in a world of rapid change, there is nothing more worth knowing, for any of us, than the continuing process of how to make viable meanings.
—Postman and Weingartner

The universe is wiggly.
—Alan Watts

Far too many instructional television programs have been talking textbooks which aim to cover rather than uncover the subject.
—Harold Wigren



The Process-as-Content Trend

Another essential kind of content is learning how to learn—learning the strategies of inquiry used in each discipline. These are process strategies. They direct the questions to ask, the kinds of answers to seek, and the methods used to find answers. The "process-as-content" approach implies placing as much value on developing the ability to think and act autonomously and productively as on attaining knowledge; as much value on self-realization as on the acquisition of facts, generalizations, and concepts.

Here again television can play an important role. The following descriptions of ITV series are examples of today's emphasis on process as content.

A science series

". . . reveals the joy of self-discovery through scientific experimentation . . . emphasizing process rather than product."

A language arts series

". . . is simply a vehicle to launch you and the children into a full-blown inquiry into language and how it works. You will feel comfortable in your role as a teacher of linguistics because we—all of us—have had linguistic curiosities."

An ecology series

". . . is designed so that *students* observe, discover, analyze data, and engage in other significant learning processes."

A social studies series

". . . is designed to help the child interpret facts and improve his power of generalizing."

A biological science series

". . . has a different format . . . little narrative . . . no television teacher. Ideas are woven almost entirely

with visual images. The lessons are intended to be open-ended, to leave the students free to develop their own conclusions. . . . Often a student will not know at the instant of viewing what he is seeing or how it fits. The correct scientific implication is there; *when the student gets it is not nearly so important as how he gets it.* The teacher is urged to refrain from giving answers. *Let the questions dwell with the students.*"

A mathematics series

". . . is designed to teach students to think logically and to progress from observing, guessing, and generalizing to the ability to predict accurately mathematical events."

An art series

". . . balances understanding art with making art."

Such TV series can provide the focus and the models for personal inquiries; but for process objectives to be attained, students must have enough freedom in the classroom environment to express their own ideas, to question, to explore, and to formulate generalizations for themselves.

Television has been especially useful in disseminating newly organized *structures of knowledge*, creatively conceived *interrelationships of subjects*, and *process-oriented programs* of study (the questing-questioning, meaning-making dynamics called learning how to learn).

Dynamic TV series based on these new approaches are available now, and many more are being designed. The quality and quantity of new series will depend upon how well the new approaches are understood and appreciated by students, teachers, administrators, and citizens. When the demand for relevant, exciting materials increases, it will be met.

Education should stretch what is relevant. TV is especially suited to dramatizing relevance.

Some Youthful Ideas of Relevance

After an Apollo moon shot:
I think if we could send something like a steam shovel to the moon we may get more information about it.

About the astronauts:
Just how do they go about using the rest room?

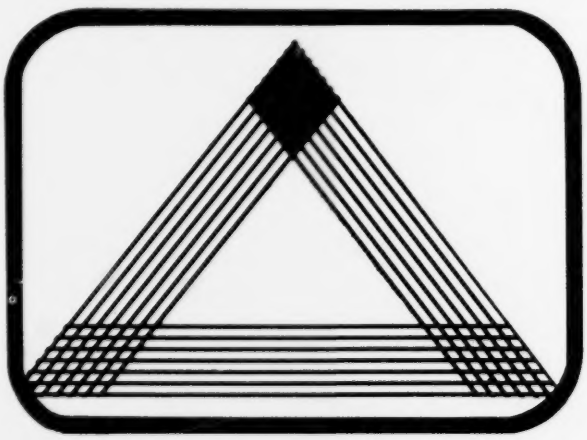
About criminals:
I think they should be given another chance. And if they do it again I would call home and ask the parents to come and pick them up.

About pollution:
I am writing to ask you, what will you do with the pollution after you clean it out of the air and water?

Will I die if I go to a city like Chicago and take a deep breath?

. . . as individuals you can try to limit your use of polluted air.

I feel before the factories discard their waste they should think twice and put themselves in the fish's place.



There are no laws of learning which can be taught with confidence.
—Ernest Hilgard

There is so much that neither broadcaster, teacher nor psychologist knows about the way we as children or adults receive and store information, organize it within our mind so that we can link it with information we already possess, and bring it into consciousness when the need arises.
—Hilde Himmelweit

3 itv and learning

In a rapidly changing culture such as ours in America, learning how to go about learning in the face of new demands is more important than learning to commit serial passages to memory. Let me not be misunderstood: you cannot think without information. The point is that you have to learn how to use information in relation to presented problems.
—Ernest Hilgard

Every great advance in science has issued from a new audacity of imagination.
—John Dewey

It is as true today as it was when Dewey wrote that one cannot forsee the world in which the child we educate will live. *Informed powers of mind and a sense of potency about coping are then the only instruments we can give the child that will be invariant across the transformations of time and circumstance.* The succession of studies that we give the child in the ideal school need not be fixed in any but one way: whatever is introduced, let it be pursued continuously enough to give the student a sense of the power of mind. . . . The process and the goal of education are one and the same thing.
—Jerome Bruner

The "silly question" is the first intimation of some totally new development.
—Alfred North Whitehead

The main objective in teaching is to give the learner a picture of the range of alternative points of view or ways of dealing with a problem. . . . You wish not so much to get something into the learner, but to get something out of him. . . . The object is not to force a gob of material into somebody's head, but rather to get that minimum amount that functions to regenerate the rest.
—Jerome Bruner

The change in our conception of the learning process Forty years ago . . . or thirty . . . or perhaps even five years ago . . . the accepted view of learning . . . supposed that learning took place through repetition, atomization, reward, and sometimes punishment. Furthermore . . . it was supposed that one learns one thing at a time. This view went through one minor transformation . . . we 'sluffed off' the euphemism of reinforcement. . . .

Currently we have to face the fact that a very great deal of learning takes place . . . by *organization* and *subsumption* of what is presented to us, under organized conceptions which are the products of previous learning.

Whatever one sees becomes a part of what he has already learned, if there is a place to put it in what he has previously learned. If there is no such place, then at that moment the highest form of inquiry can occur, because it is a moment in which one can create for himself new subsumers, new organizers.

It follows that teaching must involve some realizations of what organizers and subsumers our students possess and what sorts of new learning are afforded in them. It also requires that we have some understanding of the possibility of misplacement (misunderstanding) of new learning. . . .

It is still the case that repetition and reinforcement do strengthen subsumers, organizers, and what is organized. However, we should keep in mind that a *given* set of subsumers and organizers stultifies the possibility of learning what is new. There is need for continued strengthening throughout all education of the presentation of stubborn and isolated facts which refuse to fit existing organizers and subsumers in a person's head. Facts which refuse to fit provide precisely the irritants that prevent the closure of systems of conceptions (organizers) and keep alive the possibility of constructing new subsumers and organizers.
—Joseph J. Schwab

To what extent can the ceiling of ability itself be modified with training?
—Ernest Hilgard

A great discovery solves a great problem but there is a grain of discovery in the solution of any problem. Your problem may be modest, but if it challenges your curiosity and brings into play your inventive faculties, and if you solve it by your own means, you may experience the tension and enjoy the triumph of discovery. Such experiences at a *susceptible age* may create a taste for mental work and leave their imprint on mind and character for a lifetime.
—George Polya

Conceptions of the learning process vary—they have in the past; they will in the future. No single set of theories can provide answers to learning questions in general nor to learning via TV specifically. Today, educators wisely are searching out the complementary characteristics of the major theories and are developing methodologies that use the different psychologies collaboratively.

For example, during the development of "The Electric Company," the more than one hundred consulting specialists generally agreed that a "cafeteria" approach of presenting a variety of teaching methods based on several psychological theories should be used. Since children have a wide range of learning styles, and since the TV series is used as a supplement to a variety of in-school instructional approaches, the adoption of an eclectic curriculum seemed appropriate.

Ernest Hilgard, a highly respected generator of learning theory, has identified thirteen principles upon which most learning theorists agree. We grouped Hilgard's points into nine statements and attempted to apply them to the use of ITV. At first glance Hilgard's principles of learning seemed to be fairly ordinary and self-evident, but the more we thought about how to apply them, the more significant they seemed to become. We hope readers will have a similar experience and will go beyond our examples of their application.

Hilgard's Principles of Learning Applied to ITV

1. "IN DECIDING WHO SHOULD LEARN WHAT, THE CAPACITIES OF THE LEARNER ARE VERY IMPORTANT."

Human beings, as the anthropologists and social psychologists tell us, have an unlimited potentiality to respond and learn. The upper limit of these potentialities has not yet been discovered. Numerous studies have pointed out that there is a considerable degree of underachievement of all students; for example, Miner has demonstrated that a majority of students (54.6 percent) are working at a level at least four grades below that at which they could be working.

One's actual capacity to learn, however, is influenced by many factors—cultural expectations, self-expectations, motivation patterns, or even IQ scores. For example, a child who fails to renounce early dependency or who has a passive rather than an active orientation toward experience is hampered in his potential to learn.

Instructional television, wisely used, can assist in unlocking the potential to learn. For example, the video portion alone can reduce today's almost-exclusive emphasis on verbal manipulation, the notion (practiced if not preached) that reading and listening are the chief means for developing all mental processes. Rather than fostering dependency needs (sit still, keep quiet, and wait until I tell you what to do next), TV programming *can* be used to tap the great reservoir of self-teaching potential we all harbor. For example: a TV program can provide a focus for a week's study; students can design their own independent follow-up activities; teachers, freed from some of their presentational duties, can give more individualized guidance to novice's self-designed and self-assessed learning experiences.

Aided and abetted by both courageous, empathetic teachers and sharply focused TV programs, learners can work at their own levels. Independence develops when it is exercised; an active orientation to experience can be fostered through self-designed studies.

The charge that TV imposes a lockstep curriculum regardless of the capacities of learners has been of real concern to all educators. We are proposing that TV, wisely used, can help unlock the curriculum. This proposal is supported by the results of a survey of ITV personnel in the United States, from whom procedures for individualizing instruction via TV were requested. Over and over, the respondents made the following suggestions:

We use single concept video tapes for individual students or small groups.

We use headsets from listening posts. Individual or small groups sit in the corner of the room at a table equipped with jacks. Seldom does the TV face the whole room.

Cassettes are the answer.

We use ITV series as a part of an individual student's prescription.

We have ability groups in each subject. A teacher often uses the same series with a class of high ability and a class of low ability. The individualizing is accomplished through very different programs of utilizing the TV series.

We look at TV as a source of data to be manipulated in different ways by different classes.

Having open-ended programs helps.

When classroom teachers realize that we expect them to experiment with broadcast series, that we do not expect every telelesson to be viewed by the entire class and the teacher, and that we want them to use programs as they see fit to meet individual needs—when all this is understood, then teachers are more creative in their use of TV and are motivated toward more flexible classroom management in general.

We are happy that series do not carry grade level identification on the air. This permits us to select

the appropriate lesson for each child without embarrassing or discouraging him.

We individualize listening/seeing assignments during telecasts and individualize follow-up assignments. One group or one student may use a TV lesson as a launching platform for an in-depth follow-up study while a lower level group or student may need more clarification and repetition.

We use ITV for basic instruction in order to free classroom teachers for attention to individual students.

We design multi-level scripts and provide two levels of suggested follow-up activities in the manual.

We have been successful in having small interest groups viewing television series with the requirement that "each-one-teach-one" (or more) after each telecast. We find the requirement of having to teach what was viewed makes the viewer more attentive and more inclined to follow up what he saw individually or with his "students."

Much has been written on ways to free students to develop in their own idiosyncratic ways; teachers are increasingly finding ways that TV can be used as a medium for individualizing.

2. "A MOTIVATED LEARNER ACQUIRES WHAT HE LEARNS MORE READILY THAN ONE WHO IS NOT MOTIVATED. LEARNING UNDER INTRINSIC MOTIVATION IS PREFERABLE TO LEARNING UNDER EXTRINSIC MOTIVATION."

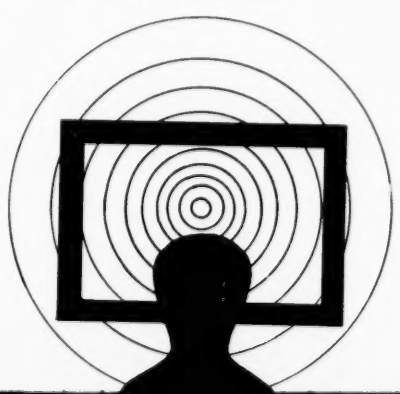
One of the things television can do best is to provide motivation. Motivation determines attention, and attention is related to cognitive restructuring. Television itself is attention-getting for cool kids. Its programming can be dramatic. It is especially good at presenting raw data of a conflicting nature that produces the conditions for discovery. It bombards the senses with a vast array of all the audio-visual resources known. It can be both entertaining and perplexing at the same time. It can provide in-depth treatment of a segment of a topic, or it can rather beautifully interrelate subject areas (even through camera techniques alone). Not all ITV series today are this compelling in nature, but programming is improving every year as budget controllers come to appreciate the necessity for extensive pre-broadcast formative research.

A medium which can draw 8½ millions of non-coerced students daily, as it does with "Sesame Street," must be classified as extrinsically motivating. Some of the motivating, attention-gaining factors identified by the research staff of "Sesame Street" are—

- music
- action sequences
- anticipatory segments (what will happen next?)
- animation, zany comedy, and loud arguments—all furthering the content
- kaleidoscopic variety, fast pace, and brevity of individual segments

A teacher would have to be a magician to be able to produce such extrinsically motivating factors.

Intrinsic motives to be cherished include the joy of discovery, the joy of independence, the joy of succeeding, the joy of reaching for more difficult solutions, and the joy of discovering new problems as well as new solutions. Joy is laughing and having fun in the classroom, too. Teachers, not TV sets, are indispensable for creating the conditions under which such self-motivation can develop. A child's extrinsic motives of pleasing the teacher (or the reverse) or of getting good grades are strong. On the other hand, the powerful chain reaction of "intrinsic motivation→achievement→appreciation of self-worth→intrinsic motivation, etc." is much stronger. Although the competitive drive and the need for recognition both exist, more learning will accrue when the competition is with oneself, and when the recognition is of knowing that one is about to reach for another level in the ladder of successful learning experiences.



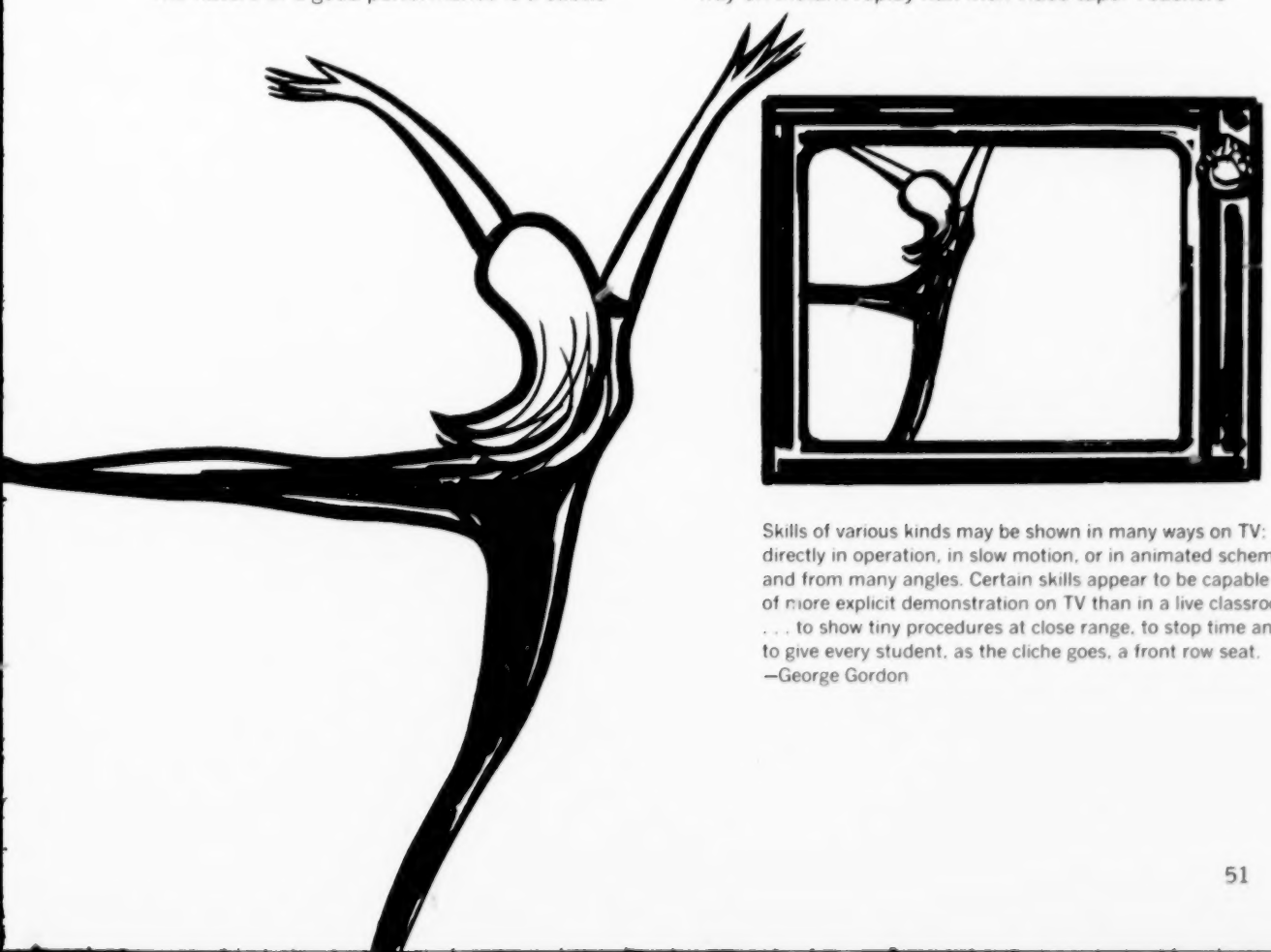
3. "INFORMATION ABOUT THE NATURE OF A GOOD PERFORMANCE, KNOWLEDGE OF HIS OWN MISTAKES, AND KNOWLEDGE OF SUCCESSFUL RESULTS AID LEARNING. TOLERANCE FOR FAILURE IS BEST TAUGHT THROUGH PROVIDING A BACKLOG OF SUCCESS THAT COMPENSATES FOR EXPERIENCED FAILURE."

For providing information about the nature of a good performance, television is almost without peer. Dental schools discovered this long ago as they focused their cameras on the tiny operations performed in patients' mouths by experts. No longer was the "good performance" viewed by only the three or four students who could crowd around and peer in. As has been mentioned before, *processes* are especially well suited for television. Bruner insists that competency models are needed for productive learning, and cites TV as an ideal medium for showing the processes of experts, e.g., a genuine physicist doing a *real* experiment.

The nature of a good performance is a subtle matter. It consists of more than step one, step two, and step three, as set down in a lab manual. It also involves the élan of a biology teacher as he delicately dissects a worm. Julia Child's manner of tackling a French culinary masterpiece has given courage to many a hesitant cookbook-reader.

The evening programming carried by PTV (public television) stations is an especially fruitful source of outstanding performances by experts in nearly all fields, ranging from African dances to zoological experiments. As one teacher who regularly uses PTV fare as an assignment put it: "My students seem to get more from hearing and seeing Horowitz than they do from our school orchestra."

When TV delivers ready-made programming, it cannot provide the learner with personal feedback about his mistakes and his successes. However, when TV is used by learners, via the making and analyzing of video-taped "bits," it becomes a potent feedback source. For example, gymnasts, divers, debaters, and thespians can study their form in the most realistic way on instant replay half-inch video tape. Teachers



Skills of various kinds may be shown in many ways on TV: directly in operation, in slow motion, or in animated schematics, and from many angles. Certain skills appear to be capable of more explicit demonstration on TV than in a live classroom . . . to show tiny procedures at close range, to stop time and to give every student, as the cliche goes, a front row seat.
—George Gordon

and teachers-to-be can (and do, in many methods courses) rigorously analyze their teaching performances as recorded on video tape.

Such "bits" are not only useful as self-evaluation data, but can also serve as models. Teachers can tape a good demonstration of any physical skill (e.g., the threading of a sewing machine or a 16mm camera) for students to follow. It can be played over and over again while students are practicing, and the action can be stopped for further analysis. If the student can then tape his own performance, especially after intervals of practice, he may clearly see his progress (or lack of it) and either add to his backlog of successes or have a more concrete problem to attack.

4. "THE PERSONAL HISTORY OF THE INDIVIDUAL—FOR EXAMPLE, HIS REACTION TO AUTHORITY—MAY HAMPER OR ENHANCE HIS ABILITY TO LEARN FROM A GIVEN TEACHER."

Students, of course, bring their past to school with them. The student with a disciplinary, authoritarian father figure may bring his hostility toward any authority with him. He *may not* transfer this hostility to the teacher on television, however, since "blame" and punishment are not about to be meted out by the TV teacher. In one sense, the impersonality of TV teachers can be a relief to the student who is subtly or openly rejected by students and teachers alike. Social class differences between students and teachers often block effective live communication.

A subculture-bound child, who cannot respond to the mystifying cues and symbols that his teacher and classmates use so casually, may be aided in his process of acculturation by the rich pictorial aspects of TV. A television teacher who is essentially a carbon copy of his classroom teacher may quickly close his eyes to this avenue of learning. Big Bird of "Sesame Street" fame, however, is an example of TV's power to bring noncarbon-copy teachers to threatened students.

At the very least, the classroom teacher using a TV series is giving his students the opportunity to react to a second "given teacher"—one whose lack of punitive powers alone may be of great value to some students.

5. "LEARNING UNDER THE CONTROL OF REWARD IS USUALLY PREFERABLE TO LEARNING UNDER THE CONTROL OF PUNISHMENT."

Punishment can motivate one to learn many things. So can reward, but the by-products of learning motivated by past rewards tend to be more socially acceptable. Ready-made television programming can neither reward nor punish, in reality, although some elementary TV teachers use the technique of praising the responses of unseen students. What TV can do is to provide models of teaching strategies (such as inquiry and problem solving) that honor the contributions of students.

Being able to lead groups in a positive manner, to reward each student with courteous attention, and to replace "You are wrong" with "Let's find more evidence" is not easy.

When TV carries such group discussions, student viewers may participate through anticipation of what the inquirers on TV may say and through covert agreement or argument with what is said. (After all, isn't that what we do much of the time we're not speaking?) Teachers may participate in a different way: "What would I have said next to draw out of students the things that are important?" "Could I have accepted that unreasonable remark?" "How could I have helped the child see that it was a premature conclusion without punishing him for trying to make his own system?" Such series can be very helpful for students and teachers alike in making learning its own reward.

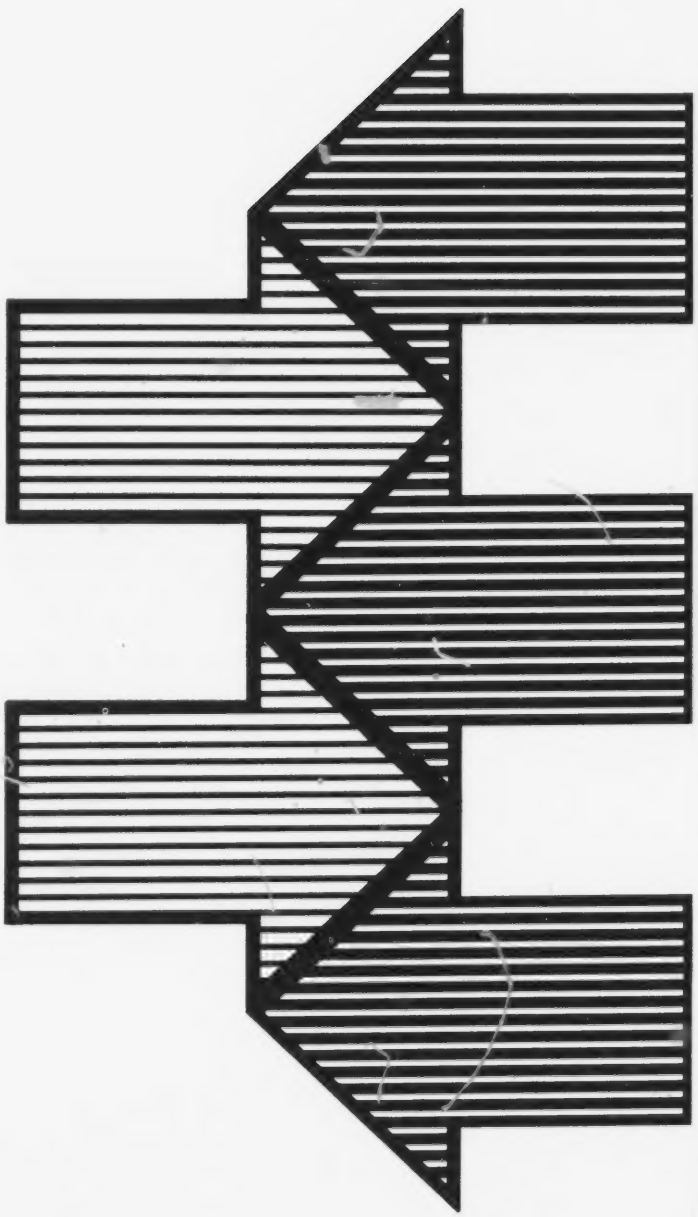
6. "INDIVIDUALS NEED PRACTICE IN SETTING REALISTIC GOALS FOR THEMSELVES, GOALS NEITHER SO LOW AS TO ELICIT LITTLE EFFORT NOR SO HIGH AS TO FOREORDAIN TO FAILURE. REALISTIC GOAL-SETTING LEADS TO MORE SATISFACTORY IMPROVEMENT THAN UNREALISTIC GOAL-SETTING."

Let's assume that you are using a four-week (four-program) TV series called "Practical Politics." You know, according to the manual, that the series is designed to make students aware of our political process and to show them ways by which they can participate in their own communities. The aim of the series is to stimulate thinking and to spark action rather than to give pat answers or to pile up facts. In no way does the series try to set up goals for the students. How can you give your students practice in setting realistic goals for themselves?

One teacher had each student write a proposal stating what he needed to find out about the local, down-to-earth details of political party organization, precinct work, campaigning, and financing procedures. In effect, each student was writing a contract, stating "this is what I think I need to know and this is how I intend to find out." Some students elected to work together during the four-week period; others, alone. The teacher was willing to accept modifications of the proposals as students discovered they had set their goals too high or too low.

As the students watched the weekly TV program that dramatized the story of a young candidate for the office of state representative, they were comparing the essential humanness of practical politics portrayed with the cold data they had collected. Since each program ended at a point in the story where a decision had to be made, the immediate follow-up discussion centered around using their own data to reach the decision, and special emphasis was placed on verbalizing their underlying values.

Although other examples could be cited in which students were given the opportunity to set their own short-range goals, this one was selected because it generated longer-range goal setting by several of the students (seniors) who became very active in precinct work.



7. "ACTIVE PARTICIPATION IS PREFERABLE TO PASSIVE RECEPTION WHEN LEARNING"

To this we might add "both during telecasts and during classroom activity periods." In too many of both situations, however, active participation is still, unfortunately, only a myth. Studies have shown that even in physical education—probably the most activity-prone situation in a school setting—students move less than half of the allotted time. Current attempts to analyze (and time) the interaction between teachers and students in the classroom have yielded overwhelming evidence that the most widely practiced teaching act today is "telling others of our conclusions."

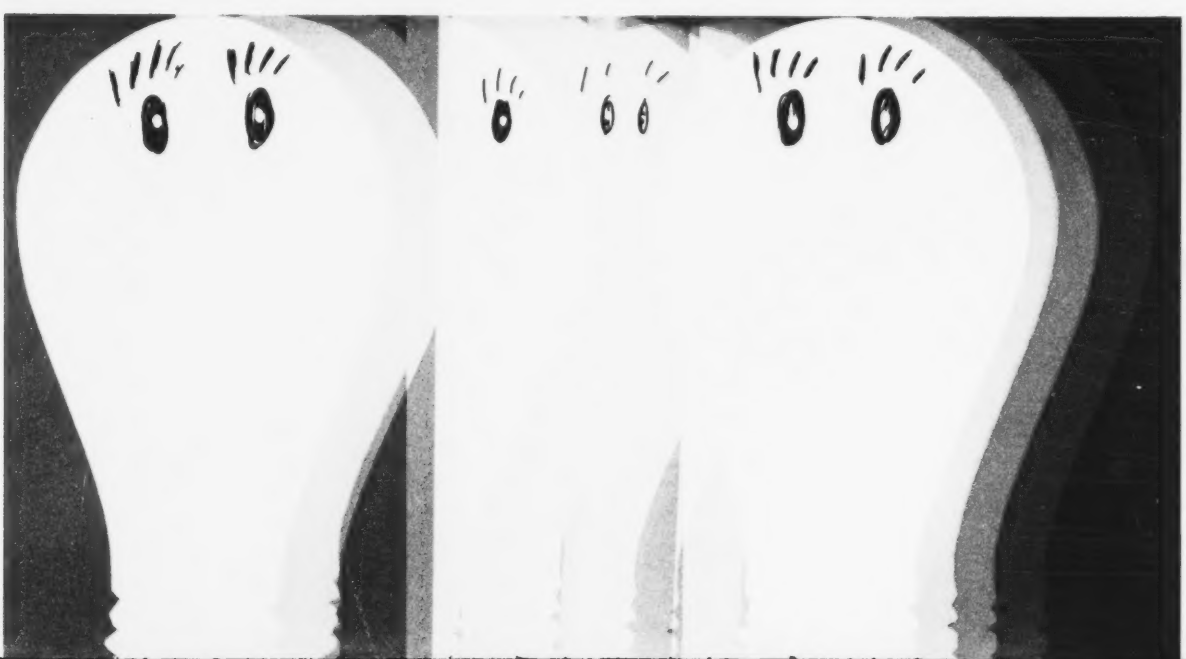
A *straight rhetoric of conclusions*—that is, when only facts are given and the processes of arriving at the facts are omitted—is not conducive to covert participation. A *narrative of the reasoned facts* may be. The story of how conclusions were reached can be a tempter to intellectual action. In the narrative, students may be encouraged *not* to accept all they hear. They may be challenged to find conflicting evidence. They may be asked to fit discrepant facts into what they have previously learned.

As Bruner and Schwab point out, TV can deliver a narrative form of inquiry that is very difficult to prepare.

The number of people who can do the job of constructing a narrative of inquiry intelligently and responsibly, in their respective fields, is few. The typical teacher cannot do it. Consequently, the school system which has the resources . . . to get the people to do this job on tape for television is supplying the classroom what it cannot otherwise get.
—Joseph Schwab

[Television can] lead the student to a sense of alternative explanations, as in dealing with the properties of light, whether a particle theory or a wave theory. The students end with a justified feeling of unsettledness. Here television is in an extraordinary position. It is not limited to a single teacher, a single theory, nor a single formula.
—Jerome Bruner

Even *a participative pattern of inquiry* can be generated by TV when the TV teacher presents a problem or a focus or a discrepant event . . . asks students to account for such a thing . . . then provides enough silence for students to struggle with the gaps in their conceptual systems. Beyond the focus, however, students must have two kinds of freedom—the external freedom (classroom conditions) to question and gather data, and the internal freedom (ego-strength) to follow through. Clearly, this is the classroom teacher's domain, and seeing that the student can get the specific information or feedback to his ideas is a part of this domain. As cassettes and discs become more widely used (and cheaper), TV can play a major role in bringing data into the classroom at the instant they are needed.

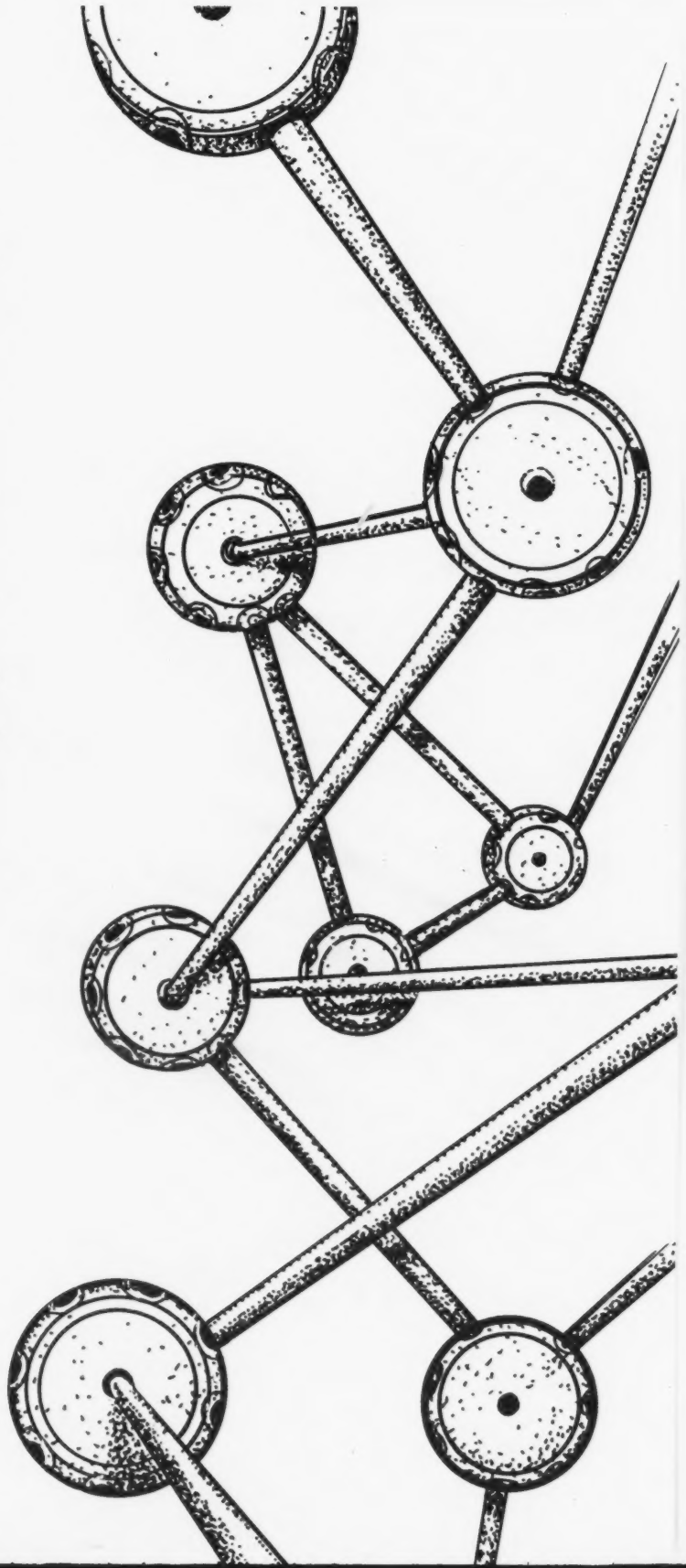


8. "THERE IS NO SUBSTITUTE FOR REPETITIVE PRACTICE IN THE OVER-LEARNING OF SKILLS. SPACED OR DISTRIBUTED RECALLS ARE ADVANTAGEOUS IN FIXING MATERIAL THAT IS TO BE LONG RETAINED."

Organizing opportunities for repetitive active practice in *thinking skills* may be our highest calling, and TV can foster such development. For example, the description of a 15-lesson science series states that the series proposes to "develop critical thinking; establish the importance of evaluation based on observation; and posit the idea that there is not always a set answer in science." Throughout the school year, students are led, via the TV series, to practice inquiries in the consideration of substantive scientific issues. Another science series focuses on "instilling within a child the realization that science is a process of *obtaining* information and of *organizing* that information into a definable body of knowledge." The description continues:

> Television lessons will be done by a problem approach. At the beginning of each lesson, a problem will be presented; evidence will be introduced; children will then have to make a series of observations, evaluate the evidence, and try to draw a conclusion. Very little information will be given the children by telling or lecturing of facts. They will have to learn through *observation, discrimination,* and *synthesis* of evidence."

Second graders viewing this series will have weekly, spaced intervals for practicing these thinking skills.



Repetitive practice of *social skills* (e.g., the ability to help and work with others) is beyond the influence of TV except for the occasional demonstration by models. This again is the domain of the classroom teacher. In Chapter 6, the development of human relations within a classroom is discussed. Increased sensitivity to social problems and aesthetic experience, however, may be gained via the dramatic content delivered.

Practice and drill of *physical skills* may be encouraged on TV by explicit demonstration or by the statement of problems to be solved via movement. Usually, however, it is more economical for physical skill practices to be held between telecasts.

9. "TRANSFER TO NEW TASKS WILL BE BETTER IF, IN LEARNING, THE LEARNER CAN *DISCOVER* RELATIONSHIPS FOR HIMSELF, AND IF HE HAS EXPERIENCE DURING LEARNING OF APPLYING THE PRINCIPLES WITHIN A VARIETY OF TASKS. MEANINGFUL MATERIALS AND TASKS ARE LEARNED MORE READILY THAN NONSENSE MATERIALS AND TASKS NOT UNDERSTOOD BY THE LEARNER."

Chapter 2 concluded with the statement that TV can be especially useful in disseminating newly organized *structures of knowledge*, creatively conceived *interrelationships* of subjects, and experiences designed to involve the learner in active *processes of learning*. The discovery of relationships for oneself and the manipulation of meaningful materials are at the heart of all three of these approaches, and TV's role, sometimes large, sometimes very limited, has been pointed out. Bruner's hypotheses on the act of discovery could well be studied by classroom teachers and TV producers alike.

1. I would urge now in the spirit of an hypothesis that emphasis upon discovery in learning has precisely the effect upon the learner of teaching him to be a constructionist, to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put. It is, if you will, a necessary condition for learning the variety of techniques of problem solving, of transforming information for better use, indeed for learning how to go about the very task of learning. Practice in discovering for oneself teaches one to acquire information in a way that makes that information more readily viable in problem solving. So goes the hypothesis. It is still in need of testing. But it is an hypothesis of such important human implications that we cannot afford not to test it—and testing will have to be in the schools.

2. The hypothesis that I would propose here is that to the degree that one is able to approach learning as a task of discovering something rather than "learning about" it, to that degree will there be a tendency for the child to carry out his learning activities with the autonomy of self reward or, more properly, by reward that is discovery itself.

3. It is my hunch that it is only through the exercise of problem solving and the effort of discovery that one learns the working heuristic of discovery, and the more one has to practice, the more likely is one to generalize what one has learned into a style of problem solving or inquiry that serves for any kind of task one may encounter—or almost any kind of task.

4. Let me suggest that in general, material that is organized in terms of a person's own interests and cognitive structure is material that has the best chance of being accessible in memory.
—Jerome Bruner

. . . the question is whether television is capable of the degree of skillful bias and selectivity to do structuring well. Of necessity, this will demand sequential programs rather than autonomous individual programs, especially if we are to explore deeply the question of the range of alternatives within one field.
—Jerome Bruner

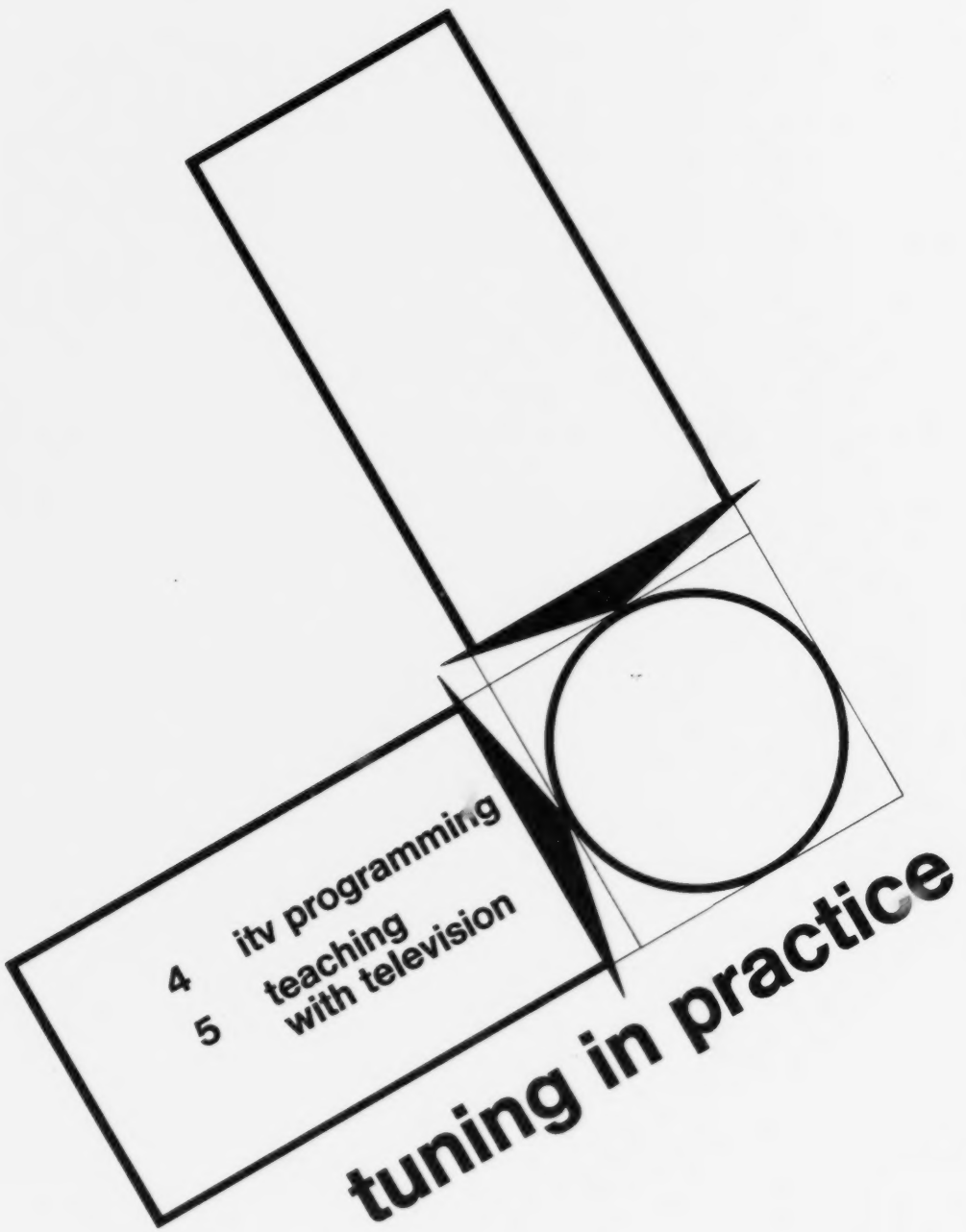
Since originality depends upon new and striking combinations of ideas, it is reasonable to expect that the more *ideas* or *images* one has available, the better are one's chances for coming up with original ideas.
—E. Paul Torrance

So what do good learners believe and do? Consider the following list and then ask yourself, "How can I help my students develop these qualities?"

Good learners

- Have confidence in their ability to learn even though they are sometimes frustrated and discouraged
- Tend to *enjoy* solving problems; the process interests them
- Seem to know what is relevant to their survival; have good "crap detectors"
- Are usually not fearful of being wrong; can change their minds
- Are emphatically not fast answerers; delay judgments until they have access to as much information as they imagine will be available
- Are flexible; seem to understand that answers are relative; frequently begin answers with "It depends"
- Are skillful in making distinctions between statements of fact and other kinds of statements; ask meaningful questions, persist in examining their assumptions, are cautious and precise in making generalizations, verify what they believe, observe carefully, and do not *need* to have an absolute, final, irrevocable resolution to every problem.
  —Adapted from Postman and Weingartner

Both in the classroom and on TV, teachers' attitudes, beliefs, feelings, and assumptions about learners and the nature of the learning process may well be the most important factor in determining the quality of learning and the kinds of learning possible in a school setting. As a teacher, think of your own class and the TV series your students view: how can you specifically apply these principles of learning?


4 itv programming
5 teaching with television
tuning in practice

4 itv programming

But the teaching machine, the television set, the slide projector, and even the Edison learning environment are only as good as the program itself.
—An administrator

The problem of ITV is programming.
—A teacher

Let's consider television . . . as a loom to weave together the best media available to do specified presentations, which are then delivered as fabric.
—Raymond Wyman

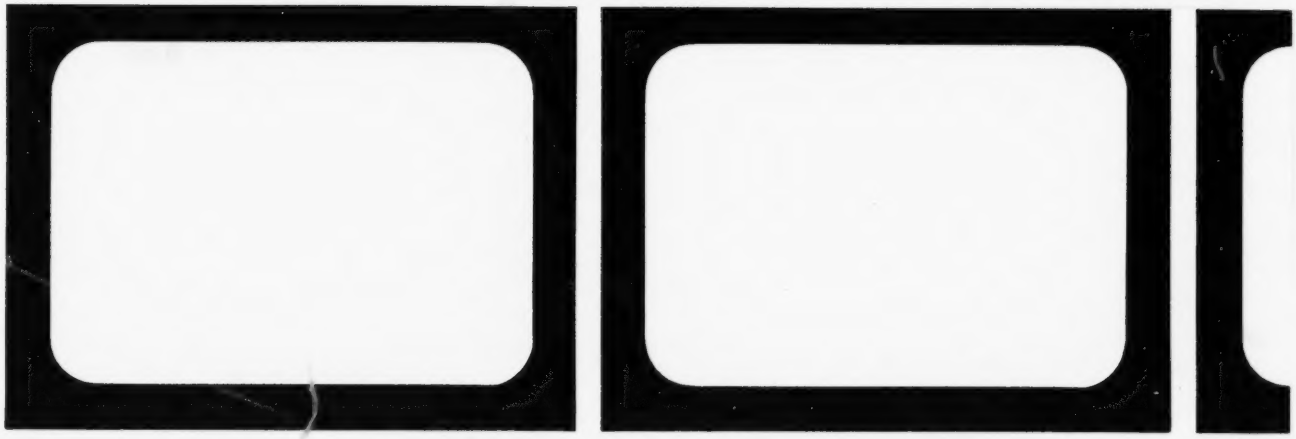
Television should be a tool in the hands of the teacher; he must be free to select from the widest possible range of offerings. Classroom programming should allow the teacher to pull from the TV fare the things that fit into the kind of teaching he wants to do.
—Richard Suchman

The quality of our dreams is neither masked nor redeemed by the quality of our technology.
—Sir Geoffrey Vickers

Felicitiously discovered, television can then serve as the quality control for the entire educational system, building and maintaining taste to a level never before imagined.
—Jerome Bruner

Technology gallops, programming ambles.
—Arthur Adams

Television utilization is no problem when the programming is good.
—Alan Stephenson



To report on the kinds of ITV programs available is, as Dr. Arthur Adams says, "like trying to catch a galloping horse." Twenty years ago, a few creative TV producers were linking forces with a few creative educators to weave together slides, film strips, recordings, films, demonstrations, realia, and all the other audio-visual goodies into interest-gaining programs. They were convinced of two things: (1) that the more striking the impression made upon individuals, the more likely it would be to alter their ways of thinking and to impress itself upon them; and (2) that no matter how well-intentioned, teachers simply did not have adequate preparation time or ready access to the materials and resources needed for making especially vivid impressions.

Today, twenty years later, these beliefs still hold, but the proliferation of information about how learners learn and about how content can be more efficiently and potently organized has led to a wide range of more sophisticated programming from which students and teachers can select what they need. If you haven't looked at ITV recently, you're in for a surprise. It's improving rapidly. Part of the improvement is due to an increasing shift of sensitivity from the needs of teachers and administrators to the *real needs of students*. Related is the increasing attempt to validate the instructional worth of series before releasing them for distribution.

In attempting to deal with the curricular implica-

tions of ITV programming, the distinction must be made between ready-made, packaged programming, which is usually delivered by broadcast, and the additional programming (or at least the more flexible scheduling of programming) made available via VTR'S, ITFS, cassettes, discs, satellites, etc.

Four Traditional Types of Ready-made Programming

Traditionally, ready-made programming comes in four very different packages with widely differing purposes and, consequently, with widely differing impact on curricula. These four packages are—

- Major resource (or basic instruction) *series*
- Supplementary *series*
- Enrichment *non-series* TV experiences
- Total teaching *series*

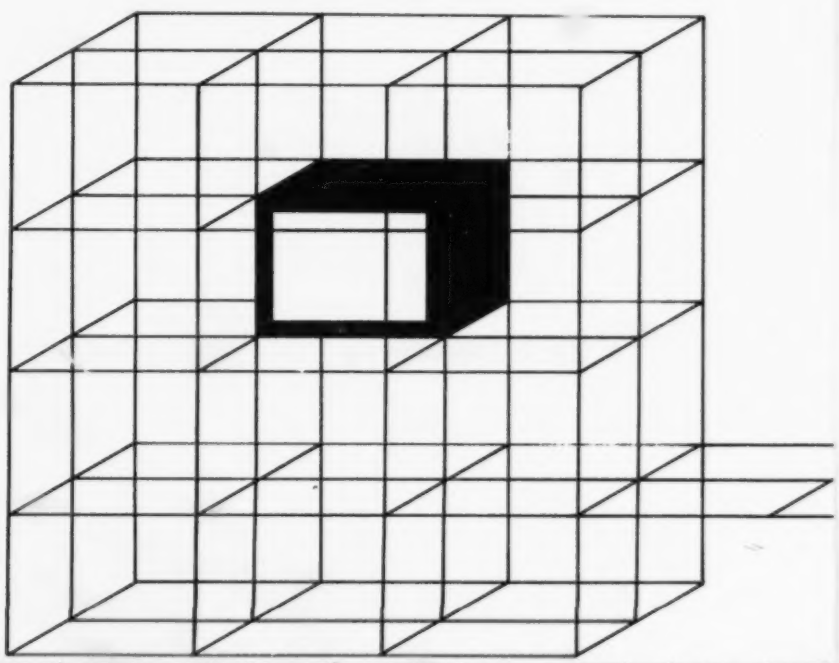
The following four sections will outline the chief characteristics, will give examples, and will pose some curriculum questions for each of these four uses of television.

A Major Resource (or Basic Instruction) Series

A major resource series is used as the guiding influence for a course of study. It introduces and develops key concepts, thinking processes, and skills.

1. Characteristics

- It determines the scope and sequence of topics to be considered.
- It is developmentally produced, each telelesson building upon the learning experiences provided by the previous ones. Students (groups or individuals) usually need to view all the TV programs in the series to obtain maximum benefit.
- It attempts to free teachers from presentational tasks so that they have more time and energy to focus on students—to perceive their differing needs, to assist them in designing and carrying out appropriate learning experiences, to evaluate their progress.
- It is often used to disseminate and implement innovative curriculum revisions, e.g., "new" math, "new" science, "new" social studies, "new" movement education. Sometimes *innovative* major resource series are designed to self-destruct. Such series have as a secondary goal the in-service education of teachers and are usually accompanied by very complete teachers' manuals outlining both innovative content and how-to-do-it details. Massive ITV aid at the start provides teachers with an orientation to the new approach. When they become confident and proficient, they are expected to drop the series.
- In elementary schools a major resource series often eliminates the need for specialists in art.



music, physical education, and languages—areas in which classroom teachers frequently need and welcome help.

- In colleges and universities, pressed with more students in required courses than can be scheduled in small classes, a major resource series allows professors to present core information via TV. Telecasts watched *en masse* are followed by small group discussions, practice laboratory sessions, or counseling—usually led by graduate assistants.

  This idea has also been adopted by some secondary schools that use modular scheduling, team teaching, or a modified Trump Plan (40 percent small-group work, 40 percent individualized study, and 20 percent mass instruction). Perhaps the most dramatic example is in elementary schools where, after the core telecasts, 4th, 5th, and 6th grade "tutors" present the follow-up material to individual kindergarteners and first graders.

2. Examples of Major Resource Series

A new treatment of art . . .

"The televised art lessons have been put in a sequence according to the visual elements of design. There are groupings of lessons on line, shape, texture, space, and form. A perception lesson follows each grouping and is conceived with the exposure to the world around us and is, therefore, helpful in developing in the child a greater interest and curiosity in his surroundings."

A new treatment of music and movement . . .

"A TV lesson on making songs and dances encourages improvisation within a form and stresses problem solving as a teaching/learning strategy." Most of us in the teaching profession appreciate and want to promote the freedom and creativity that some youth of today seem to express in their music and dance, yet our backgrounds are so limited we hardly know how to break away from our 1-2-3 box step orientations. Major resource series can provide guidance and bolster courage.

A new treatment of science . . .

"Two theories *attempt* to explain the origin of the universe . . . The Big Bang Theory . . . the Steady State Theory . . . *observational theories are far from complete* today. . . ."

A new treatment of language arts . . .

"Instructional objectives—feel the rhythmic movement of a poem, discover the many ways our bodies move, become more aware of the sense of touch."

A new treatment of the affective domain . . .

"Central ideas of the telecasts—experiencing discrimination toward people who are different, overcoming prejudices."

The story of a self-destruct series . . .

Some years ago, a curriculum-study group of teachers in Columbus, Ohio, worked diligently for several years to prepare a two-semester required course in health science to replace the existing unsatisfactory one semester of health and one semester of science. The resulting course guide, thick as a city telephone directory, seemed a masterpiece of curriculum engineering. No adequate textbook could be found, but the guide was so full of excellent resources that a text was not needed. The only major setback occurred when the discovery was made that very few teachers were qualified to teach this new problems-course, which ranged from the study of optics through emotional disturbances, from sewage and water treatment through dating. Consequently, a 25-minute, daily, major resource TV series was planned as Phase I in implementing the new approach.

The cooperation of the community in helping to produce such an ITV series was nearly overwhelming. The most complex of demonstration equipment was loaned; scientists, physicians, executives, and even the governor—people who could never afford the time to personally visit every school in the viewing audience—did take time out to appear on the telelessons. And when Coach Woody Hayes of Ohio State University urged students to get yearly health examinations, doctors' phones were jammed right after school that day.

At the end of two years of massive televised assistance to health science teachers and classes, the teachers indicated that they were ready to take over the responsibility of doing the day-by-day structuring of health science themselves. They had become confident and proficient in teaching the subject matter; still, they (and their students) were reluctant to give up the best of the televised demonstrations and guest appearances, knowing that it would be practically impossible to arrange for them in the classroom. Thus, the conclusion reached was to switch from producing a major resource series in health science to producing a supplementary series; the original self-destruct intent had been fulfilled.

3. Curriculum Questions

- Do you or teachers in your community need assistance in updating a course of study so that it meets the needs of today's youth?
- Will using a major resource television series be a better alternative than the existing curriculum?
- Is there available on tape a series that fits the philosophical and psychological long-range goals of your schools? Is it possible that the long-range goals need revision?
- Do you have the ego strength to forego the presenting or performing role and to replace it with the infinitely more complex and professional tasks of devoting more attention to individual students, planning individualized learning experiences, and focusing on socio-emotional growth as well as on acquisition of knowledge?

A Supplementary Series

Supplementary TV series are designed so that each telecast in the series is complete in itself; regular, sequential viewing of every telecast is not necessary to obtain maximum benefit from the series. Designers of supplementary series usually attempt to follow the most frequently used content sequence so that programs fall at times when more students can see them in conjunction with on-going work.

1. Characteristics

The chief characteristic of a supplementary series is its flexibility.

- It may consist of stimulating introductions to successive units of study broadcast throughout the school year . . . or it may provide in-depth treatment of a limited topic within a month's time.
- It may promote inquiry, or stimulate students to think critically, by raising questions rather than

giving answers, by posing problems, or by opening up a large range of alternatives.
- It may provide raw data or a narrative of reasoned facts or a focus for investigation.

2. Examples of Supplementary Series

This English series . . .

"Is in response to the *demands* [made by high school English teachers] . . . for stimulating ITV programming in the areas of poetry, writing, mythology, drama, and book reviews."

This speech improvement series . . .

"Does not attempt to follow any particular sequence but to provide speech experiences at random just as the child's speech normally develops. It is hoped that teachers will want to develop speech improvement programs for individuals."

This art series . . .

"[Consists of] TV lessons . . . designed to stand alone as satisfying art experiences. . . . [Hopefully, they will] motivate creative classroom activities that involve seeing, feeling, formulating relationships, and experimenting."

This French series . . .

"Is based on the belief that for too long French has been only the study of words . . . and not the study of people. The episodes of this series literally teem with the people who make France what it is—shopkeepers, florists, and tourist guides . . . fishermen, grocers, and taxi-drivers . . . [who] provide the backdrop for a half dozen teenagers."

This sex education series (optional) . . .

"Includes videotaped lectures on abortion and contraception . . . given by obstetricians and gynecologists . . . to avoid 'individual prejudices of teachers' affecting their presentation of such sensitive subjects."

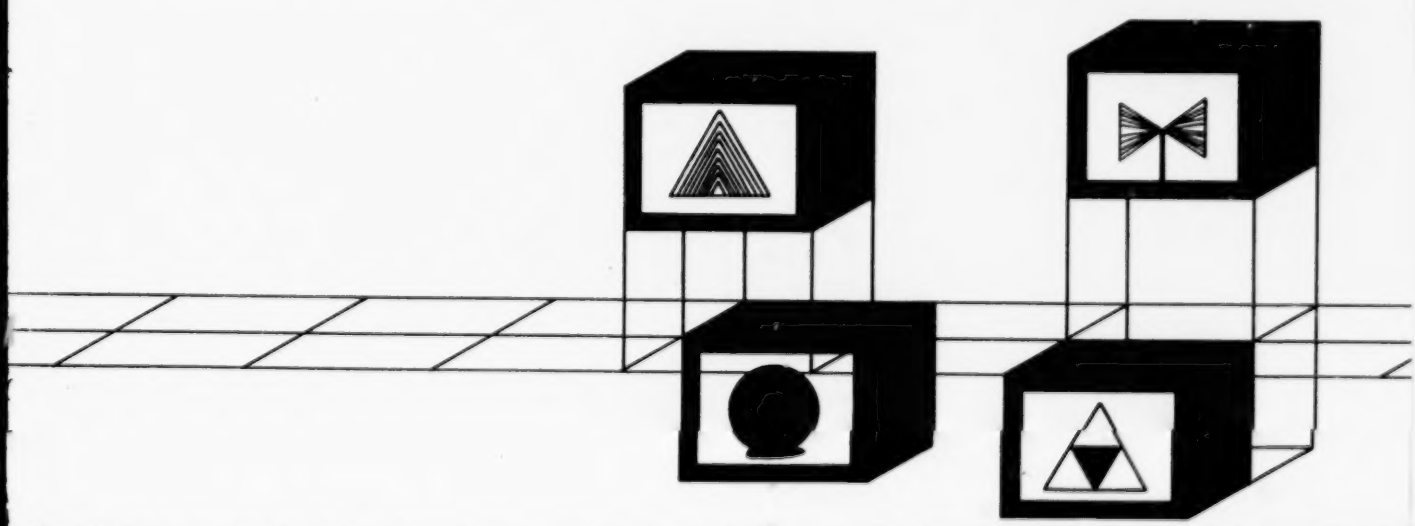
Series to bridge time and space . . .

"This program depicts the 'ancient' practice of Roman slavery with startling reality and with subtle provocation for further study. . . ."

"This program reconstructs the step-by-step discovery and excavation of an ancient tomb, keeping curiosity alive to the end, describing the culture and customs of the ancient Egyptians, dramatically presenting the wonders of a lost civilization."

3. Curriculum Questions:

- Do you try to provide different forms of instructional communications for students?
- Do you study the schedules of PTV stations to take advantage of programs that will illuminate topics your students are studying?
- Could you use supplementary series for individuals or small groups who need advanced or remedial work?
- Do you need help to make particular units of study more involving, more relevant?



An Enrichment (Non-Series) Use of Television

Enrichment use of television implies taking advantage of programming on commercial and PTV stations—programs not specifically designed for instructional purposes or for in-school viewing.

1. Characteristics

- It implies taking advantage of the immediacy value of live coverage of events. It means students aren't tempted to stay at home to be *in on* an exciting "lift off" or "splash down." Teachers sensitive to students' interests will see to it that they have the option of viewing events as they happen during the school day.
- Evening and weekend programming simply cannot be overlooked as valuable enrichment experiences. Students do watch television; they do learn from it; they can benefit from a teacher's awareness of upcoming programs relevant to the curriculum.

2. Examples of Enrichment Use of Television

Public TV programming, carried by local nonprofit stations, is specifically aimed at populations that haven't been well served by commercial TV. In one evening, for example, programs were aired for people interested in American folkart, intercollegiate rodeos, children's interpretations of the Revolutionary War, pop concerts, black poetry, and circus parades (a 40-horse team controlled by only one driver was featured).

The continuing PTV series are especially useful for out-of-school assignments. Here are a few examples of series that could enrich school studies:

Robert Crombie's "Book Beat," a different approach to book reports, provides insight into contemporary authors' lives.

"World Press" provides information about what other nations are saying and thinking about the United States.

"Masterpiece Theatre" provides professional quality dramatic productions for study.

"The Six Wives of Henry VIII" illustrates history in a particularly meaningful way.

"The Advocates" involves people directly in the issues of our times.

Commercial TV programming, both local and network, is also so full of enrichment materials that only a teacher completely out of touch with the world in which students live could fail to see its potential usefulness in virtually every curricular field. Here are examples of questions to explore with students:

Why did "Laugh-In" become so popular? What generalizations can be made about its appeals? What hypotheses can be stated about its audience? How could they be tested?

How do the three major networks differ in their selection and presentation of the news? How influential are the networks in determining what you believe

and feel?

3. Curriculum Questions

- Do you give students the option of watching live television when history is in the making during the school day?
- Do you study weekly TV schedules of commercial and public television broadcasts so as to capitalize on relevant programs?

4. Another Kind of Enrichment—for Teachers

Under enrichment we could also include in-service programs designed for teachers to watch at school or at home. Often both major resource and supplementary TV series for students are preceded by programs introducing these series to teachers. For example, "Images and Things" has three practical introductory programs for teachers. A more comprehensive in-service effort may be seen in the 21-program series "Project Physics Teacher Briefings," which alerts teachers to the aims, materials, and classroom uses of all the components of the multimedia system used in the "Project Physics" course.

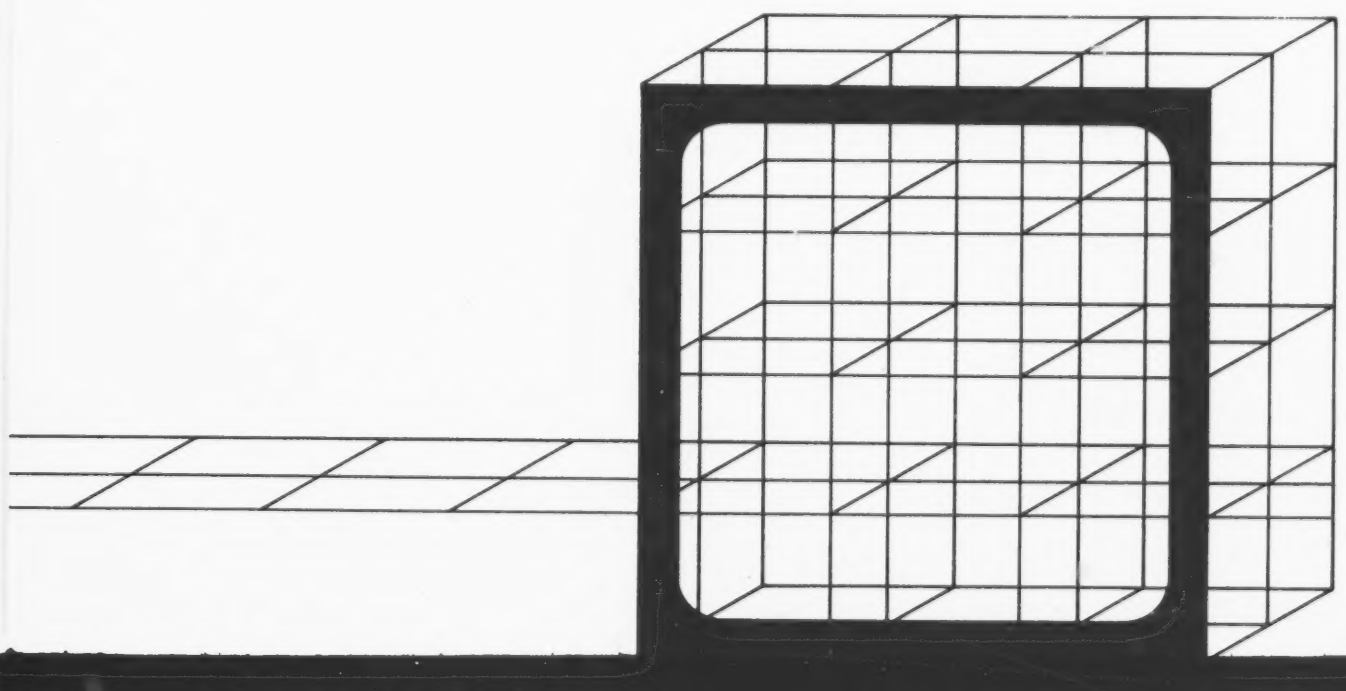
Local in-service TV programs can meet many needs. In large systems, much travel time can be eliminated by having staff meetings via TV. Specific local problems can be aired. "Shadings" is an outstanding example of using TV to meet local needs. A powerful program produced by the New York State Education Department to reveal inadvertent tendencies toward racism, it skillfully forces introspection on the part of viewing teachers.

A Total Teaching Series

Total teaching series are rare, yet they fill a most vital educational need. They are designed to stand alone—no classroom teacher is involved, and there may not even be a classroom. Registered students take the course as it is delivered by TV, either at school or at home. Their self-teaching, self-disciplining potential is put to the test. They have no one to answer their questions, no scheduled opportunities to discuss what they have seen—they must "grab it as it goes by." Textbooks or manuals usually accompany the course, but "Sesame Street" is a prime example of a total teaching series that has no essential accompanying materials.

1. Characteristics

- Total teaching series are used for advanced or specialized courses that attract too few students to allow the school system to hire teachers, e.g., advanced math or foreign languages.
- In preschool, adult, or continuing education, TV courses are available to fill a wide range of educational needs—from teaching the illiterate how to



read and write in the privacy of his home to bringing the surgeon up-to-date on the latest techniques.

- Some summer school series are designed to stand alone, with no adult guidance or supervision.

2. Examples of Total Teaching Series

In science . . .

"In situations where shortage of teachers or laboratory facilities makes science teaching difficult, these programs may be used, in themselves, to provide solid fundamental teaching. The teaching scheme consists of carefully planned and presented experiments, models, film, diagrams and, where appropriate, animated calculations. An excellent Program Guide accompanies the series."

In remedial reading . . .

"A weekly 28-minute reading improvement course . . . students come on campus for silent reading pretests . . . test results, along with reading material kits with practice exercises, are mailed to each student. Weekly lessons consist of . . . instruction and the use of filmstrips with the Tach X . . . at the end of the course, the silent reading test is again administered on campus. Comparisons indicate that students became involved in their work and improve their reading techniques."

A summer schedule . . .

"As a service to groups organizing children's summer activities as well as for children at home, [a state ETV network] scheduled four hours of children's programs daily . . . including instructional series in art, music, social studies, and literature."

A summer school curriculum . . .

When an Ohio school system had its budget for summer school drastically reduced, total teaching series were produced as a substitute for operating the junior high schools. Students needing courses in science, English, math, social studies, and remedial reading watched the series at home, often with their parents. Half of the testing was done via TV, with parents supervising; the other half was done in schools. Of the 1,091 students taking exams, 925 passed.

3. The Curriculum Question

- Is using a total teaching TV series a way to provide instruction in areas that are not otherwise taught?

Trends for Improving ITV Series

Two fairly recent developments in the production of TV series have raised the quality of programming considerably. One is the consortium approach to production in which a number of educational and television agencies share the expenses of developing an instructional series that no single member could afford alone. For example, 14 agencies banded together to produce "Ripples," the all-color series designed to develop a child's feelings, values, and ability to create and understand relationships. Such cost-sharing makes it possible to employ top-level consultants to rethink all elements of a subject—to plan what should be taught and to utilize recent research in learning processes.

The second production trend is a move toward validating ITV programs or series—attempting to guarantee that students will learn what the series

ITV can serve both the advanced and disadvantaged, encouraging not only the urban wife to pursue her studies in English literature but also the ex-convict to earn his high school equivalency and then to go on to college-level work.
—Sidney Marland

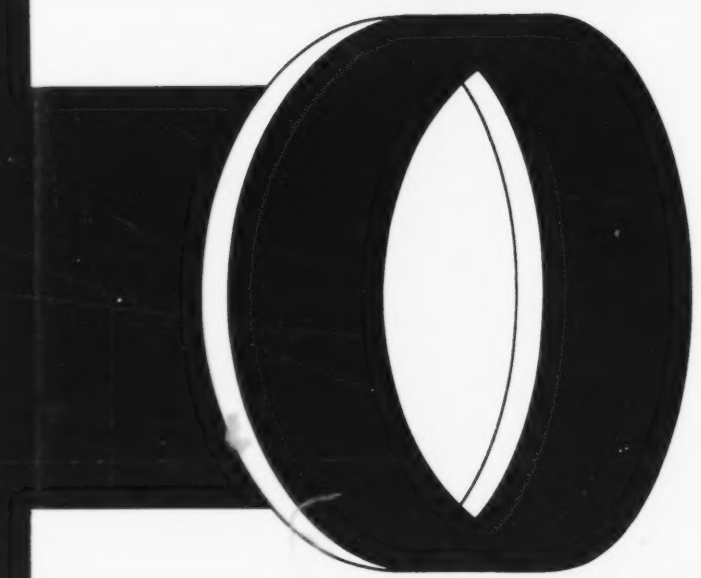
were designed to teach. Although the means of validating vary considerably from one producer to another, learners are generally used to help shape each step of the instruction. A behaviorally stated set of objectives is created: *who* is supposed to make *what response* to *what televised experiences* based on an analysis of *why* it is important for learners to make such a response. The televised lessons are then revised until most students can readily achieve the expected responses.

Although validation of specific programs is being attempted, ITV producers are usually among the strongest supporters of the notion that human beings are far too complex for any comprehensive "systems approach" that attempts to state *all* terminal behaviors to be achieved. They believe (and are being increasingly successful) in testing and revising programming on the basis of whether specific instructional objectives have been attained by selected students. At the same time, they are convinced that TV's power to entertain (and people do learn from entertainment), its power to enrich in a broad cultural fashion, and its power to influence values and attitudes on a long-term basis cannot be measured in objective terms. As George Gordon puts it: ". . . the *important* results of *all* education probably only begin to appear long after a specific phase of education has been completed."

When television is used to create conditions where the designer will be held directly accountable for the learning that takes place, the intent becomes instructional. Efforts must then be made to design ways to manage instructional situations in order to control the experiences or symbols to which the individual is exposed and to which he must respond for his learning development. Only here do the specifics of behavioral objectives and the discipline of procedures for instructional design become operational. A primary instructional intent in the use of technology does not deny the value of intents to inform, to enrich, or to entertain. It does, however, discipline the design, execution and assessment of success—results for which instruction should be held accountable—to rather rigid tolerances.
—C. Edward Cavert

Perhaps our enthusiasms for systems and techniques will be tempered if we remind ourselves periodically that one of the most highly sophisticated systems of human engineering ever achieved by man was the one that eliminated, employing subtle managements of *input* and *output*, *sequence*, method and so forth, six million Europeans . . . Eichmann's pride in, and defense of, this system was eloquent . . . as an example of how men may worship methods at the expense of humanity (and sanity). All of us may be able to conceive of countless "systems" which will "solve" our educational problems today. . . . But before we accept their slick promises, let us calculate carefully what we lose along the way in the pursuit of that hazy and ill-defined pot of gold called "student learning."
—George Gordon

We must keep both ideas in mind—the values of planning experiences that do make a measurable difference and the dangers of oversystemizing. Only a balance of the two will make a humanistically oriented use of technology more attainable.



Programming Possibilities via Additional Hardware

Judiciously chosen, ITV equipment added to receivers can multiply teaching/learning possibilities. A video tape recorder (VTR) can solve many thorny scheduling problems by taping broadcast programs for replay at more convenient times. This is probably the key to successful use of broadcast ITV in secondary schools. It can also feed into classrooms the many tapes available from other sources (p. 83). When a modestly priced camera is added, dramatic productions, guest speakers, and other special events can be saved (and savored) again and again.

To tape something using a video cassette recorder:

1. Plug it in
   a. to an electrical outlet if battery powered.
   b. to the mike, camera, and monitor if recording live.
   c. to the monitor or TV set and antenna if recording off the air.
2. Turn on the power.
3. Drop in the cassette.
4. Reset the tape counter.
5. Start recording.
6. When the tape is finished, take out the cassette.

For recording off the air, the program must be selected and fine tuned as usual on the TV set.

To play a tape using a video cassette player, with or without recording capacity:

1. Plug it in
   a. to the power outlet if not battery operated.
   b. to the TV set.
2. Set the player and TV set on the same unused channel.
3. Turn on the player.
4. When the tape is finished, take out the cassette.

Many cassette players allow tapes to be stopped, turned back, or advanced during replay, and many have provisions for plugging in earphones and stereo sound.

These directions have been generalized from instructions for operating the SONY VO-1000, VO-1600 and AV-3600. Details may vary from one machine to another, but all manufacturers of TV equipment meant for nonprofessional use include easy-to-follow, step-by-step directions written (and usually illustrated) expressly for nonexperts. Such instructions should be attached to equipment for easy reference.

Much of the self-contained video equipment is becoming far easier for teachers and even students to use. Video cassettes, a relatively recent alternative to reel-to-reel recorders, play previously recorded programming, and some of the players also record. Programming comes in smaller packages, which are more easily stored and shipped, and the tape never has to be handled at all. And even as some experts are hailing the "Cassette Revolution," cartridges and discs, also designed for ease of handling, are on their way to market.

The tremendous number of local production possibilities that do not duplicate broadcast ITV programming ranges from single-concept tapes to local field trips recorded with a backpack TV camera.

I would like to see a sort of TV film bank where teachers could store speakers, demonstrations, etc., that would otherwise be lost.
—Robert Fordham

I can teach six students to set up and operate a video tape recorder in ten minutes.
—A professor of education

To tape something live with a VTR designed to be used by TV nonprofessionals:

1. Plug in the VTR
   a. to an electrical outlet if not battery powered.
   b. to the camera and microphone if recording live.

2. Put the full reel of tape on the machine and thread it onto an empty reel.

3. Turn on the power.

4. Start recording.

5. Stop recording.

6. Rewind the tape.

Many machines make it possible to pause, to advance the tape, or to simultaneously erase and re-record while taping. Some require an additional piece of equipment (rf selector) to be plugged into the recorder and TV set when recording from a conventional set. For recording from a TV set, the program must be selected and fine tuned as usual.

To play a tape

1. Plug in the VTR
   a. to an electrical outlet if not battery powered.
   b. to the monitor or TV set.

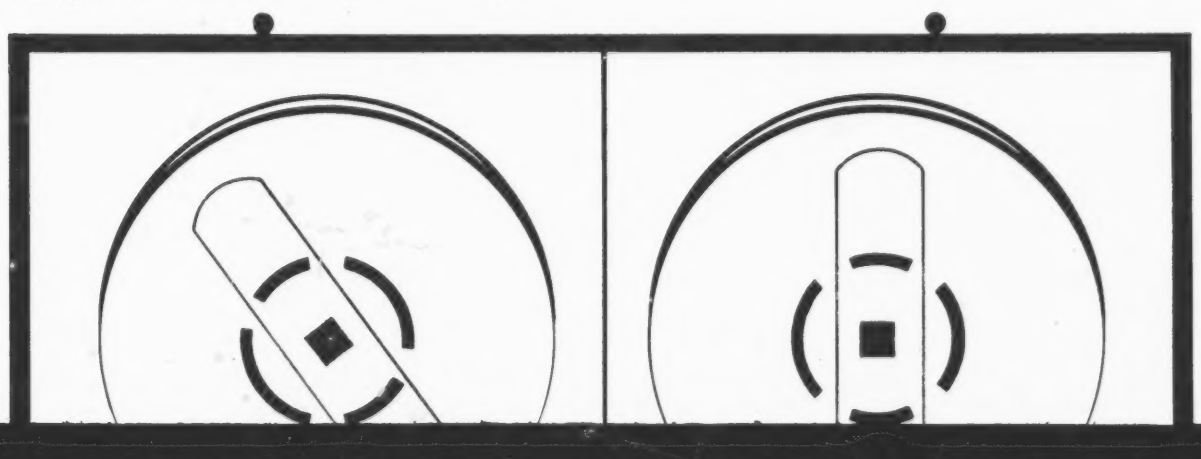
2. Thread the recording tape through the VTR and onto an empty reel.

3. Start the VTR.

4. Stop it.

5. Rewind the tape.

Many machines make it possible to freeze action, to use slow motion, to rewind, or to go fast forward during playback. Some require an additional piece of equipment to play back through a TV set (see above). The TV set must be tuned to the same channel as the VTR and may have to be fine tuned as usual.



Instruction can be tailored to local curriculum needs and even to the needs of special groups—honor students; gifted, slow, or disabled learners; the culturally disadvantaged; those to whom English is a second language.

Teachers in large lecture classes can combine the advantages of television with those of direct communication. Many different kinds of visual materials can be presented rapidly. Closeups, including specimens under a microscope, and demonstrations that students could not otherwise see, from art techniques to dissolving sugar cubes, become clear to all. Largely nonverbal information such as musical scores can be disseminated without first being reproduced. At the same time, students can ask questions, and if the class isn't getting something, the teacher can show and explain it again.

When students and teachers man the cameras, television as a medium shifts into the truly active voice. Within limitations, but without waiting for film processing, any group can become a producing unit. Also, being able to record and play back a sequence or performance contributes an almost priceless dimension to learning—the ability to see ourselves somewhat as others see us.

Students learn a great deal relatively painlessly by watching what they actually do instead of relying on someone else's subjective evaluation. By stopping and replaying tapes, they can analyze and correct their own errors with or without a teacher's help.

VTR's and other record-and-playback devices simple enough to be used by television nonprofessionals can have an astonishingly wide application when used with imagination. Here is one list developed by one teacher after an ITV conference:

1. ETV in the urban school, rough sketch of program ideas to be produced on video tapes:

Debates and discussion panels on controversial issues

Point-of-view program involving individual students

Student presentation of lessons

Student TV, reporters with video tapes of various reactions to issues

Opinion polls conducted among students at the school and in segments of the community

Math lessons flashed on TV screen, competition between classes

News contests and memory retention exercises

Video-taped mathematics examples using the community in teaching; for example, base 5 uses geography, streetcorner pictures, and maps.

Minority group lectures on relevant material

Historical drama, acting out historical problem situations and the emotional conflicts contained within. Pause, then discuss the conflict and possible resolution, and finally, show actual historical resolution of conflict.

Psychodrama, sociodrama, and role playing as learning situations

"You Were There," historical educational program using relevant examples of living community members who lived through a specific conflict in history

Inter-racial panel commenting on significant current events

Certain novels, rewritten in play form, that will be relevant to urban city culture

State representations on ETV for a local creative arts festival

Filmstrips on psycho creative writing techniques to be flashed on the television screen with time allowances for student creativity, and then a follow-up presentation of the most appropriate materials created by students

There are over 5,000 free films in the U.S., about 40% of them available for television distribution.
—Robert W. Hill, Jr.

. . . . In the course of a single half hour [of a lecture by Dr. Paul White . . .] television was used to show readings on gauges, flat pictures, charts and illustrations from several books, 33mm slides, and a close up picture of the reaction in a cloud chamber, a device about 3 inches in diameter. All this was shown to more than three hundred students at one time.
—Gene R. Stebbins

I could use it to let the students review their selling techniques, etc.
—A teacher

I saw a film the other day which copied some of the techniques of "The Electric Company." The second graders did it—and did it well. . . .
—Edgar Dale

It's hard to be told what you're doing wrong, but it is easy to see it.
—A student

2. Examples of psycho therapeutic techniques which are useful in the classroom

3. Program on juvenile delinquency to be broadcast to "normal" classrooms

—Tom Justice

Some More Specific Educational Applications of Video Tape Recorders, Cassettes, and Cartridge Systems

- Magnification and visual display of laboratory materials, graphic pieces, book pages, etc., for group viewing
- Preservation of "behavioral specimens" for analysis in such performance areas as speech, drama, music, practice teaching, and calisthentics
- Administrative prescription to students or personnel who must be shown how to go about a certain procedure in class, in the laboratory, in getting together documentary evidence, and like activities
- Drill exercises in language, calisthentics, mathematics, and other subject areas where rote learning is desired
- Data storage and retrieval, especially for group showing. The data may be static or cinematic, with or without audio
- Test application in a non-print format so that a wider range of responses can be elicited for course measurement
- Simulation and gaming experiences requiring audiovisual cueing
- "Electronic blackboard" displays of teaching value in mathematics, physics, and related topics of high abstraction
- Topics for written or discussion assignment given in audiovisual formats

—*Television Cartridge and Disc Systems: What Are They Good For?* NAEB, 1971. For an even more detailed list, see *Television in Instruction: What is Possible*, NAEB, 1970

The VTR . . . not only helped me to teach but improved my teaching. . . . I could see myself teaching.
—A teacher

TV would allow me to go back and review a guidance encounter or interview. Perhaps the students could benefit from seeing themselves in such a situation, too.
—A guidance counselor

It is very gratifying to be approached by a student saying, "Yesterday on TV you said . . . "
—George Bibich

Diverse areas benefit: debate, acting, speaking foreign languages, typing, singing, playing musical instruments, and learning sports from football to swimming (in many cases, a school system's first VTR was in the fieldhouse). Students benefit from seeing their own classroom behavior televised: what they don't like, they have a chance to change. Student teachers can observe more classes and travel less by watching video tapes made at many different schools.

Microteaching

Watching oneself teach can be a dramatic happening, too, both for experienced teachers and for student teachers (whose supervisors thus have an objective record to evaluate). There's the chance to stop the tape and say: "Now why did I do that?" "Could I have phrased this better?" "Did I get the reaction I wanted, and if not, why not?" The courageous teacher can even get additional—and very likely surprising—insight by replaying a tape with the class and finding out what *students* thought was going on and why.

VTR's or their equivalents are invaluable in a multitude of contexts, from testing when performance, not paper-and-pencil skills, is important, to parent-teacher communication. A tape demonstrating a child's perceptual problem, for example, helps a

parent to understand that problem. A class taped in progress can demonstrate an instructional program, or the need for one, much more effectively than just talking can. In fact, the ability to record and play back is a great advantage at almost any time (in or out of class) when it is important to see, rather than just describe, what happened.

Studio Production

In-school production beyond the VTR can involve anything from one inexpensive camera and some lights to a spacious studio equipped with all sorts of electronic gadgetry. Besides taping instructional programs and allowing students to work with the medium, in-school production makes many things possible. Televising school news and panel shows featuring students and/or faculty may contribute to a feeling of community. Information that had been tediously retailed by various departments—for example, college requirements from the counseling office, health precautions from the school nurse—can reach target audiences with one airing. Since their administration does not vary, standardized tests via TV are more truly standard (just be sure reception is adequate and everybody can see the set well).

School systems probably do more, and on a bigger scale, than a single school can, because their financial resources are likely to be larger. Communities with cable television have even more very real, though relatively unexplored, possibilities (see pp. 87-89).

Since probably no two schools or systems will have the same television needs or use the medium the same way, some informal case studies follow. One example describes a student-run studio, one outlines a school system's closed circuit operation, one illustrates the use of ITFS, and two show something of community cable's potential in education.

The TV Studio as Learning Experience:

Upper Arlington's WARL

Background

WARL is a student-run television operation located in the Upper Arlington, Ohio, senior high school. In 1971/72, the Upper Arlington School System, on the outskirts of Columbus, budgeted $697.65 per pupil. Although the administration has furnished some equipment, it does not provide operating expenses.

The Studio

WARL means a lot to the students who work there because they started the studio, and they run it. The venture began as an interest club in a high school journalism class, with no financial backing. Students raised the first cash, bought and scrounged the first equipment, and picked up the know-how they needed as they went along. The first programs were produced in a classroom during lunch periods. Until Ron Fadley, coordinator of Upper Arlington's speech programs, came along, they barely had a faculty advisor. He showed them how to mount a campaign to persuade the administration to help equip the new studio. Their main objective was to convince officials that they, the students, were

By the time students get to high school they're so blase, so uninterested in so much.
—A teacher

Kids shouldn't just sit in front of TV. They should be *doing* it.
—A teacher

I work more in here than in all my other classes combined.
—Leslie Tilton, Student Manager, WARL

They're dedicated and self-motivated. . . . They do and do and do. . . . You can't turn 'em off. . . . It kind of shows that Dewey and Piaget are correct, that people learn most when they get most involved.
—Ron Fadley

We were Little Brother. I can foresee the time that we'll surpass the newspaper.
—A student

That camera. Kick it twice and it might work.
—A student

They run the place and run it well. I do have the final decision and I have vetoed shows, but I mostly just advise.
—Ron Fadley

He's manned a camera. He's sold a doughnut.
—A student, about Ron Fadley

Primarily this station's a tremendous way to learn democratic living, decision making, and how to make things work.
—Ron Fadley

We have to do our math and chemistry, too.
—A student

It's very important that we work on everything. What makes us different is, we're hands-on everything, and so many places are hands-off so much.
—Scott Swearengin, Student Business Manager, WARL

Doughnut sales are our most stable project. With advertising, we have a little trouble guaranteeing audiences.
—A student

Sometimes a couple of us can go down to watch and double the audience.
—A student

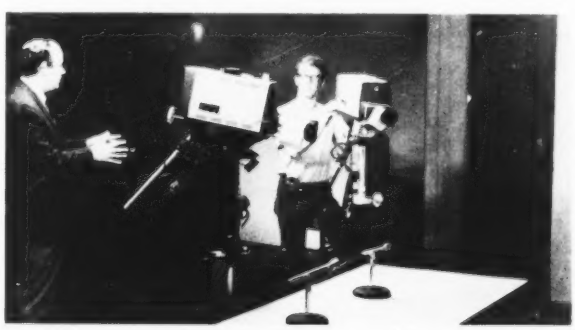
It's true. People really do like garbage.
—A disappointed student-producer

responsible and respectable and could be of service to the whole school. Then, of course, they had to live up to their claims.

Twenty students earn one-half to one hour of academic credit for the four, sometimes six, hours a day they often put in at WARL; approximately 50 more (on a waiting list) do jobs without credit. Supposedly, the enrolled students rotate responsibilities so that everyone learns everything, but often the person who can do something the fastest and the best (and doesn't have to study for an exam) just takes over.

The students do all the writing, directing, performing, and technical work for their programs, which are taped and then shown—irregularly so far—in the student center. They also work on special projects for teachers and other students. They've taped a guest expert's explanation of how to buy a used car, for instance, and televised a term-paper substitute, "This is Your Life, William Faulkner." When WARL has thoroughly settled into the new studio, the students plan to produce, in cooperation with teachers, more ITV materials.

WARL's students raise their own operating expenses. They also decide whether fall football is a big enough draw to justify putting a backpack VTR high on their priority list, how to raise the money for it, and what they'd rather do without. Some student producers have found out the hard way that while a satire on "Divorce Court" or a popular teacher's play-



ing Santa Claus may have SRO audiences, only two or three people might watch some other production. Comments from other students who are not involved in the station and are accustomed to network professionalism are not always favorable, either; but learning to take criticism is part of the whole thing.

So is the fine art of "sniffing out" and acquiring usable surplus apparatus from commercial TV studios, as well as enlisting the help of the public. At an open house, students conducted tours of the studio so successfully that people offered both talent and equipment. The students have even learned the heartbreaking lesson of vandalism. Now they keep a tight security check on the studio, where breakage is close to nonexistent.

Advisor Fadley feels that starting with student motivation and moving outward to skills and accomplishment has resulted in a deeply satisfying, in-depth, multi-faceted learning experience that is educational in the best sense. From talking with him and with students, one senses that WARL turns students on because they turn *it* on.

TV stations give us surplus things to get a tax write-off and a nice letter on our school letterhead. They can show the letter to the FCC to show community involvement.
—A student

When we had our stuff in the classroom, kids used to reach up and pull out handfuls of wires for the fun of it.
—A student

Our kids did it the right way. First build a program, then look for support. Start with one VTR if you have to. *Then* ask the school board for a fancy new studio. . . .
—Ron Fadley

If WARL had died last year, nobody would have bothered to write an obituary. Now a lot of people would want to.
—Scott Swearengin

Television on Demand: Norwood's CCTV

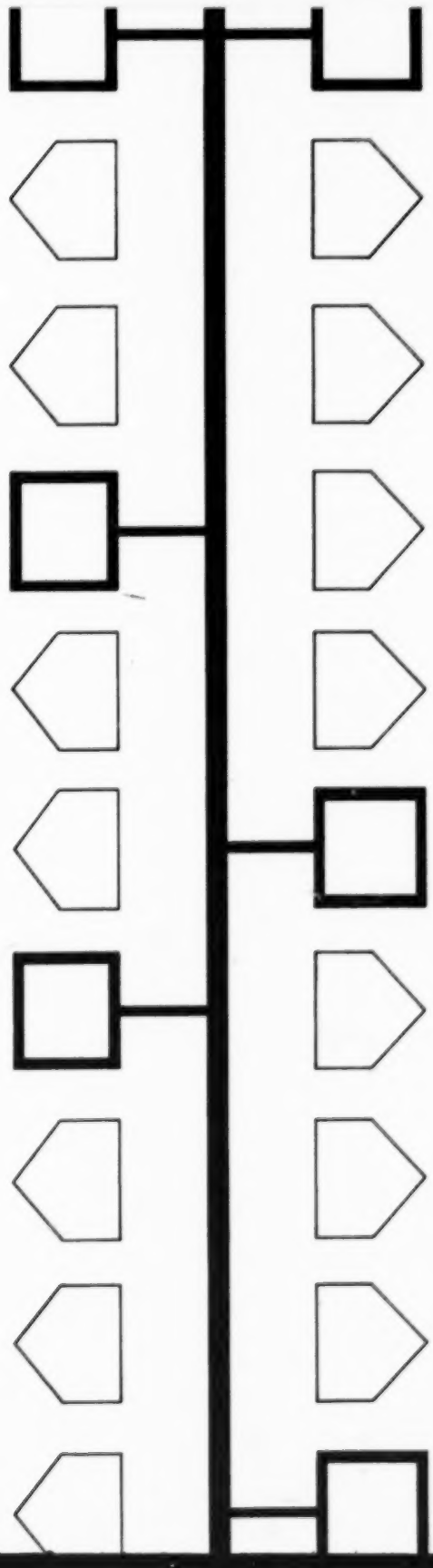
Background

Teachers and students in the Norwood City Schools choose from six channels of ITV, perhaps more than any other school system in the country. Two carry broadcast programs taped for replay; the other four are programmed locally.

The original installation received help from a Title I ESEA grant (since phased out) aimed at raising the reading level of students in scattered poverty pockets. Putting special teachers into so many schools was judged too expensive, and closed circuit TV was chosen because it makes available the largest number of channels. The present studio, new in 1971, was included in a high school financed by a bond issue, and programs can originate in an auditorium, the gym, the natatorium, and some classrooms. All channels and two taping machines can handle color; color cameras will come next in the conversion.

Television is part of Norwood's Media Center.

We haven't discovered another school system that uses more channels. And, yes, we definitely think our way is worth the money and effort.
—William Pace



where books, slides, films, and video tapes are catalogued together, and any teaching materials that can be transmitted to classrooms via TV often are. ITV lessons alone provide an average of 90 minutes of instruction a week to elementary students and 40 to secondary, or 6 percent and 2.5 percent, respectively, of their total instruction. Yet the Media Center uses only 1 percent of the public schools' per-pupil-per-year budget, which was $718.64 in 1970/71.

The Media Center also serves Norwood's parochial schools. Per pupil costs come to $9.60 a year for each of about 7200 students in 11 buildings.

The Operation

Five to ten minutes after a teacher asks for a television lesson, film, or other visual aid from among the more than 1,100 possibilities, students can be watching it. Most requests are made the day before, and the schedules, made up the night before, are transmitted to schools in the morning via TV. Then students copy the schedules onto ditto masters, which are immediately run off and distributed to teachers. If a teacher wants something else, Norwood's locally programmed channels purposely contain enough free time so that chances of getting it are good. And since each of the TV receivers (one for every 2.5 teachers) is equipped with earphone jacks so that one to eight students can watch without disturbing the rest of the class, even individual students can be accommodated.

Teachers, who recommend most of the materials acquired by the Media Center, try out many of them in class before the decision to purchase is made. Some of the teachers who will be using locally produced lessons work with the school system's curriculum director and studio personnel in planning the various series. Remedial reading via TV is mandatory for some students, and careful attention is paid to their progress. Using the rest of the programming is up

A "wind wagon" made from a refrigerator carton, a hat rack, and a sheet offers youngsters an appealing ITV trip to better literacy.

Evaluation? Sometimes the telephone melts.
—Dave Gushurst

We pull people in from the halls.
—John Vaughan

to individual teachers. Not many hesitate to let the station know what they think of what they see, either.

Local productions are characterized by verve, imagination, and inventiveness. They strive for spontaneity rather than polish. Besides the TV teacher (usually chosen by audition) the cast may include engineer Ken Noakes, an admitted ham, and almost any warm body that walks by. Rather than memorize scripts, they improvise. The time they spend in front of the cameras may be twenty times the finished program's length; but since video tape can be used over and over, this costs only their time.

The same cheerfully improvisational attitude prevails in the prop and set department. Often Noakes designs puppets or backgrounds, and they are built out of whatever happens to be around.

Programs are taped after school and during the summers. During the school day, the studio requires three people working full time and one, part time (sometimes a college student working for credit) to thread projectors and video tape machines and to start and stop them on time.

The new studio is more accessible to students than when they had to be bussed to the administration building across town. Now they can spend considerably more time on both sides of the cameras, in various capacities, and have their own half-hour talk show once a week as well.

Since television was installed in 1965, distribution of films by methods other than TV has fallen off 90 percent. When teachers can "get what they want when they want it" via TV, they prefer, by at least five to one, having films delivered that way. Studio handling reduces wear and tear on the print substantially, probably multiplies the number of viewers of each showing, and does not keep the print out of circulation for about five days, as conventional distribution does. Norwood figures that this is one of the ways that ITV can effect savings in instruction without cost to the quality of education.

Programming (Software) Available over Norwood's Closed Cable Television:

Regular broadcast ITV series

Over 700 16mm motion picture sound films owned by the system

Over 350 video tape titles, including approximately 100 local "custom made" programs designed to fill curriculum needs

Other materials from Media Center, such as filmstrips, tapes, records, maps, picture packets, etc.

Network television programs, which can be used because Norwood's is a nonprofit, nonsubscriber system

Materials from the local public library, such as films, records, etc.

Rentals from libraries such as Kent State University, Indiana University, etc.

Free industrial films from such sources as Modern Talking Picture Services and Sterling Films, Inc.

Programs shared through and by other school systems and institutions

Jim Baileyisms:

It may look like a major investment, but TV makes a lot of savings possible, too.

Some teachers still feel television's a threat or a waste of time.

Everything is tailored to the Parma system.

I think we do better than a lot of national programs.

I've been called over-enthusiastic.

Good projects attract good people.

We don't try to duplicate.

UHF + ITFS = ITV in Parma

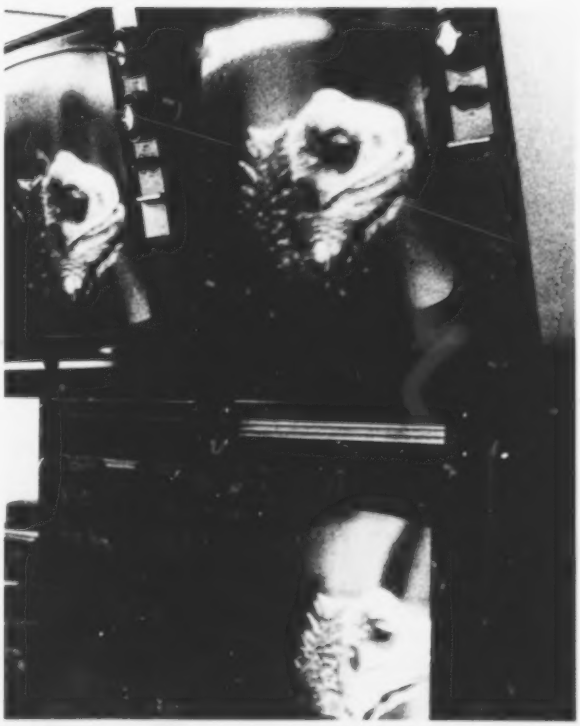
Background

Although the pioneering MPATI project sold the Parma Board of Education on televised instruction, reception in the area (from a circling plane) presented so many problems that the Board decided to produce its own programs. In the spring of 1964, it received the nation's first license to broadcast at 2500 megaHertz, the frequency above UHF set aside for low-cost, short-range instructional telecasting, called ITFS (Instructional Television Fixed Service). When broadcast ITV became available from Cleveland's WVIZ in 1965, the Parma City Schools opted to use both. They still do.

Station WGM was originally constructed with a matching NDEA grant, but the Board of Education supplied the funds for the new studio in a high school. There, WGM (Channel 7) broadcasts continually while school is in session to 29 schools in a spread-out system covering three communities and enrolling approximately 2700 students. Except for some state vocational education aid for a high school course in television, costs are paid by Parma's regular per-pupil outlay for education, $808.62 in 1970/71.

The Operation

Director of Instructional Services (and station manager) Jim Bailey figures that flexible programming, responsiveness to teachers' needs, high program quality, and dependable servicing all are factors in WGM's formula that keeps 82 percent of Parma's teachers tuning in regularly or occasionally. Many of them also use Cleveland's WVIZ, which covers a much



wider territory, but Bailey's not competing; he's on the broadcast ITV station's board.

Over half the slots in the WGM yearly broadcast schedule are left open. This allows the station to fit in special programs such as an Earth Day presentation. Teachers also have the chance to have a lesson repeated if someone has fallen behind or something else was scheduled during viewing time, or to use just one lesson from a series—on map skills, for instance—when it is appropriate. WGM can oblige such requests at a week's notice.

Teachers sit on the committee that decides what will be produced. Decisions begin with the yearly survey of teacher requests and evaluations. (Less formal critiques come in by phone, by letter, and, sometimes, even by an irate person.) If WVIZ will produce what's needed, then Parma doesn't. If a good 16mm film's been done on bats, bats are out. But when the committee decided that nothing available filled the bill on Brazil, the station began planning a series.

For one series, art teacher Dan Mihuta went to Hawaii for eight weeks and brought back musical instruments, costumes, and plans for a grass hut (which looked remarkably real when constructed by students from meticulously fringed cardboard). His programs include topics such as the Islands' topography, history, art, music, culture, and sports, and teachers use them in many contexts.

Moving easily between classroom and studio on loan and released time, teachers develop and write their own series. Generally they have four days, plus studio backup, to do one 20-minute program. Other teachers with special talents, a puppeteer, for example, share their talents via TV.

People from the community turn up, too. The Cleveland orchestra. The zoo's iguana, with curator as narrator. People from NASA. A little Navajo girl and her mother.

Students get into many acts in many ways on many levels. Plays, dances, dramas, and debates are often taped, sometimes for broadcast to the school system and always for teacher and students to analyze. The high school madrigal group, for example, sang for an elementary music series, then critiqued its own taped performance. VTR's are available for classroom playback, as well as for taping and analyzing smaller efforts in class. Furniture design,

graphic art, and even cosmetology classes contribute skills, and the TV workshop supplies the student camera crews.

WGM produces all of its programming, by now a library of 350 to 400 tapes. Of these, 70 percent are major resource series; 20 percent, supplementary; and 10 percent, enrichment programs. The channel is so filled with elementary school material that most junior and senior high programs are dubbed onto tapes, which teachers can play at their convenience in class. A second channel, which would carry only secondary school material, is under active consideration.

The studio's staff of five technicians maintains the school system's 400 TV receivers and manages the technical side of broadcasting, while producer-director Phil Stella calls camera shots like a network pro.

Stella also teaches the course in television. A 2½ credit-hour workshop, the course is being used as a pilot project to develop state-wide standards for similar ones. Along with teaching technical production competence, with broadcast quality equipment, it helps students develop their own ideas through television. They start with a five-minute visual essay, and then add narration and music. They learn to conduct demonstrations, experiment with commercials as a form, and, finally, write scripts and perform on-camera. Of the 20 students who are accommodated each year (nearly 50 apply), almost all major in television at college, and many win scholarships.

Although the main job of WGM is instructional television, the station has other uses, too. Sometimes the superintendent uses TV to talk to the staff. In-service programs explaining academic materials, as well as programs on utilization of ITV and on problems such as drugs, are aired. Panels of teachers occasionally appear on TV to discuss matters of common concern, and these discussions are broadcast throughout the system.

Parma's WGM is still one of a handful of public school–owned ITFS systems. However, more and more people are inquiring at the station about what's involved in supplementing broadcast ITV with local production. This, not the means of delivery, is what Bailey feels is important; he's already looking forward to the time when the three communities served by his station may be linked by cable television as a means of distribution.

As the trend in national instructional television continues toward ever larger production groups and consortiums, with all the advantages of larger budgets, greater resources, and higher-level expertise, so also the need increases for local production. Concentrating on local problems, concerns, resources, and involvement is one way that technology can help us humanize our technology-dominated environment.

Educators have come to recognize that *informed* parents and taxpayers are likely to be more understanding and supportive of the schools' efforts, and that parent involvement during (and even as a forerunner to) the formal teaching process is highly desirable.

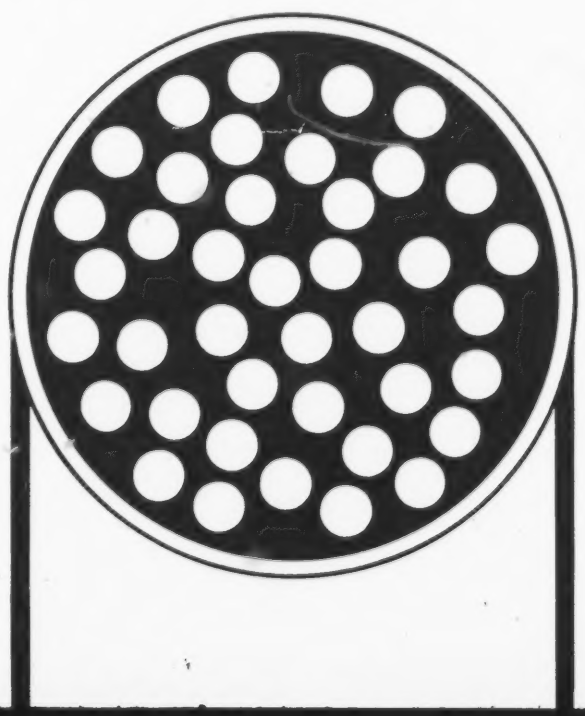
Happily, this realization has come at a time when technology has provided cable television as perhaps the ideal medium for welding the home and the school together.
—Gabriel H. Reuben

It has become increasingly clear that cable, unlike broadcast television, can operate from an abundance rather than a scarcity of channels. With local origination of programming becoming more general, it is clear that schools can and will play an important part in providing some of that programming, and not only to the classroom, but also to the community at large.
—Ethel Booth

Community Cable: What Will It Do?

Many people predict that the next big development in the television industry will be a dramatic increase in community antenna television (CATV), often called *cable TV*. Some technology-based hopes for instructional television via CATV may not come true for some time. Two-way video, for instance, though much acclaimed for its teaching potential, still costs too much to be used widely. Nevertheless, chances are good that schools can and will become more closely involved in CATV programming.

Though many CATV companies have functioned only as technical relay services, some already are involved with schools and the communities they serve. Telcom, in Chillicothe, was the first cable company in the country to produce local TV (1964). Through a leasing arrangement, it supplements the local school system's own cable ITV (originally set up to receive MPATI) with ten additional hours of instructional television taped off the air for replay at the schools' convenience. The company also produces material of use to schools, such as county and Chillicothe history. Parochial schools and branch campuses carry its local news program. Graduations, interviews with school people (the superintendent, for instance), high school athletics, and band performances are all included in Telcom's local coverage. Sometimes the station's remote unit takes on assignments beyond



the school system's technical capabilities.

The Continental Cable Company tapes and replays ITV for schools, public and parochial, in Findlay, Tiffin, and Fostoria and also covers their activities. In addition, its Findlay studio originates local programming, more, in fact, than any other Ohio CATV company. One series produced by, and for, high school students goes out to the Findlay community in 30 minutes of prime evening time every week, as does a weekly bedtime story produced by an ex-teacher and shown without commercials. Soon, the station may offer high school courses for credit.

Once a month, as part of what manager Ray Joslin calls his modified public access plan, the public school system takes over the studio facilities to do whatever it wants, again in prime time. So far, shows have been low-key and informative: how to register for kindergarten; what it costs to fix a junior high school meal. The hope is that CATV can help the schools bridge the school-community gap.

CATV operations are local, and little general information exists so far about their cooperation with schools. The National Cable Television Association expects to have a nationwide report (compiled by Ethel Booth) available soon. (Write NCTA, 918 16th St. N.W., Washington, D.C. 20006.) Until then, some imaginative examples:

Using a mobile van and studios in two schools, the Willingboro Public School System in Willingboro, New Jersey, has worked out ways to combine learning with town-wide exposure, which include—

Interviews produced by social studies students:

"How Congress Works," taped in Washington with cooperation of area congressmen

On the anti-ballistics missile system, taped with one of the state's senators

On a highly controversial jetport proposed for near the school district, taped with the FAA

On themselves: a self-portrait of a student ETV unit

A report on a nearby state college pilot project involving 60 fifth-grade students who camped out for two weeks

Explanation and information: the what's and why's of a proposed new nongraded elementary school program

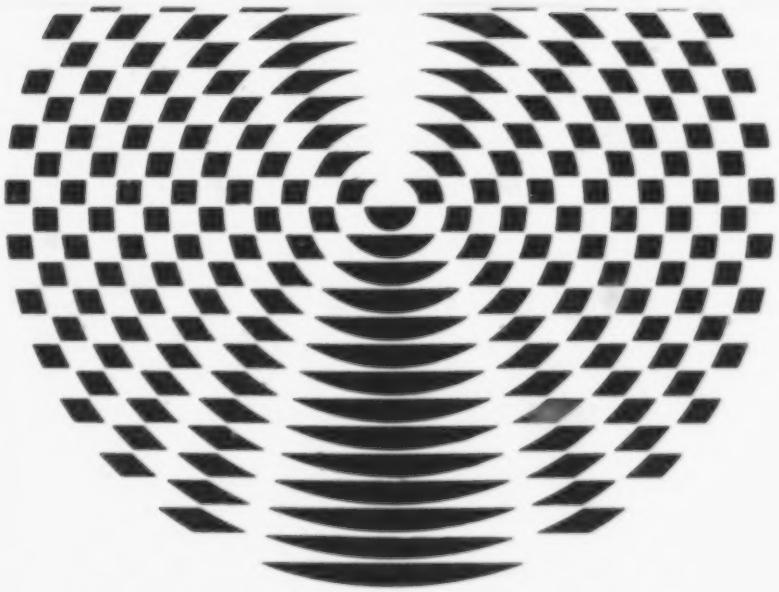
Entertainment: When students in performing arts can display their talents to the community, it provides "extraordinary motivation."

Preschool reading readiness: Worked out and performed by teachers, the program uses materials and consulting time donated by educational firms, includes manuals and followup activities for parents. Some parents spent three hours daily working with their children; all expressed satisfaction with the series.

—Reported by Gabriel H. Reuben

In Carlmont, California, high school students produce an hour of prime time a week on orchestral productions, dramatic performances, seminars, track meets, descriptions of programs such as girls' physical education.

—*Studio Technology*, December, 1971



In Grand Junction, Colorado, high school students receive credit for working in the CATV studio, and teachers receive help for producing as well as using programs. The system also carries ITV programs.

In Moab, Utah, mini-courses for staff eliminate the need for them to meet in large numbers, and senior high school students have their own TV seminar.

The University of Massachusetts School of Education is developing new program ideas for area cable companies.

Eduplex, Inc., a company in New York, is developing software for cable companies, beginning with bi-directional cable to teach basic courses in language, arts, and mathematics.
—Compiled by Ethel Booth

In San Carlos, California, a first-grade music series is cablecast during school hours and then later so that parents may watch with their children. The school district and music specialist are responsible for content; the cable company contributes the production.

5 teaching with television

A classroom teacher (or surrogate) may—intentionally or unintentionally—sabotage any TV lesson in a number of ways . . . overt or devious, well meaning or malicious.
—George Gordon

Any time a teacher puts herself in a position to be replaced by a machine, she ought to be.
—An ITV executive

Today . . . we recognize that man's most human characteristic is not his ability to learn, which he shares with many other species, but his ability to teach and store what others have developed and taught him.
—Margaret Mead

The elementary school teacher needs the stamina of a mule and the arms of an octopus. . . . The TV set will never replace the classroom teacher, but . . . I welcome help.
—An elementary teacher

The combination of television and classroom instruction resulted in the greatest achievement and in a reduction of low achievers. There was no significant difference in results obtained by classroom instruction alone and televised instruction alone.
—Santa Ana, California, Unified School District

A wise old man, widely known for his correct response to questions, had irritated a young man by his consistent wisdom. The young man, holding a live bird behind his back, approached him and said, "Wise old man—knower of all—I have a bird in my hand. Tell me if it is alive or dead." The young man had gathered a crowd for the event to prove the wise man wrong. If he responded, "The bird is alive," the young man would crush it and produce a dead bird. The wise man thought for a moment, looked the young man in the eye, and replied, "Young man, the answer is in your hands."
—As told by Alan Stephenson

Entirely too many teachers regard TV not as a valuable resource to help their students but as peripheral.
—Harold Wigren

It is always difficult to use new techniques when teachers are deeply involved in easy, conventional methods.
—A teacher

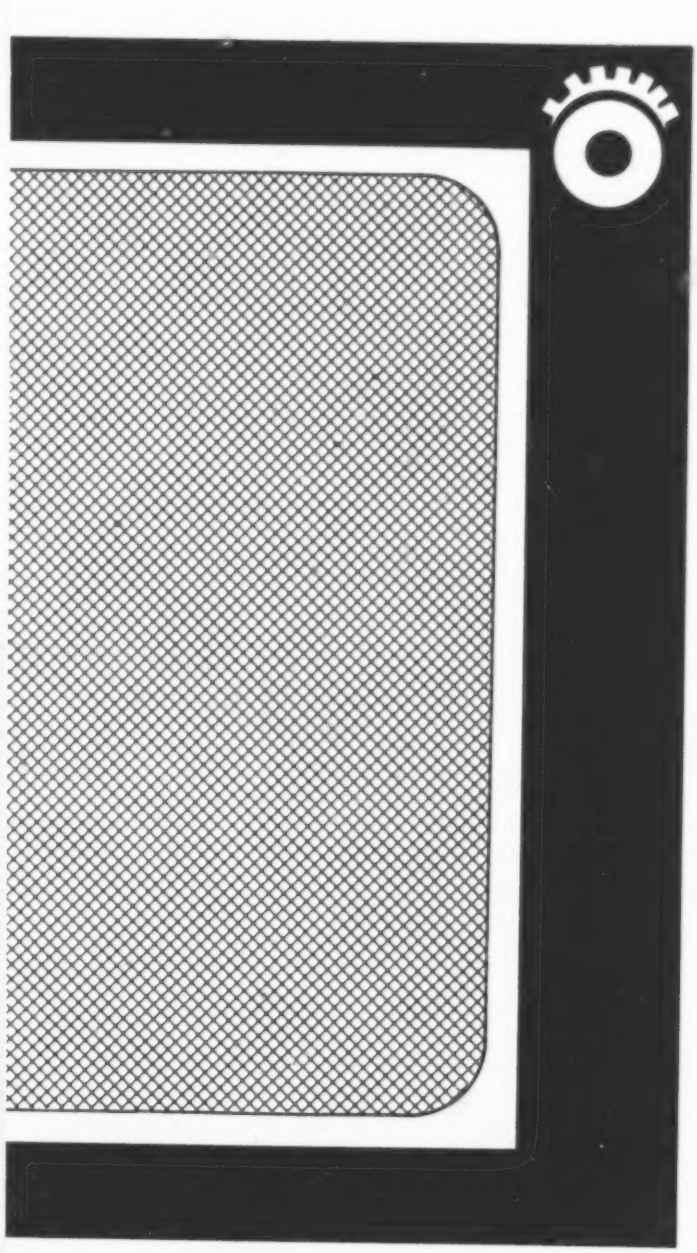
Instructional television . . . has seldom if ever come into use without some resistance from teachers. . . . Whether the teacher feels threatened will be determined in large measure by the way television is introduced, the extent of involvement by the classroom teacher, the quality of the televised classes and the support given them. . . . The content of the television and the way it is combined with classroom activities will affect both teacher and student attitudes, and the teacher's attitude toward it will affect the student's also.
—Schramm and Chu

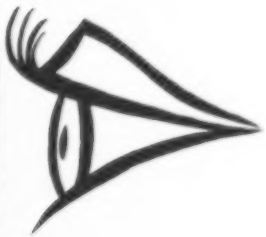
It is not enough that teachers should learn to operate instructional machines. They must learn to cooperate with the machines.
—A machine

The only rational way of educating is to be an example—if one can't help it, a warning example.
—Albert Einstein

Teaching is not like inducing a chemical reaction. It is more like painting a picture or making a piece of music or on a lower level like planting a garden or writing a friendly letter.
—Gilbert Highet

I want my kids to know how a bad drug trip feels and what it can do to them—but second hand. TV does the job and starts them talking, which is even more important.
—A secondary teacher





When Teachers Meet ITV

Most teachers experienced with instructional television like it and want to keep on using it. They may (and should) criticize a series or a program, but if the choice is ITV or no ITV, they'll take TV.

Many fears of teachers new to the medium simply do not materialize, or need not. Television lessons come by invitation and rarely stay more than twenty minutes; they are guests and resources, not threats. They are not competitive unless teachers choose to work against them. When used well, rather than turning teachers into para-professional knob-twiddlers, television lessons require even more thought and creativity.

Most series are designed to stimulate, not diminish, interaction between student and teacher. They are no more likely to stamp out little cookie-cutter look-alikes than are standardized textbooks, which students often interpret in startlingly idiosyncratic ways. In fact, many series are consciously planned as jumping-off places for divergent thinking.

Some new-to-ITV teachers are disappointed because they expect more from the medium than they know how to get out of it. Others resent it because the decision to use it was not theirs, but this is rare. Some are dubious because they have seen programs that would not fit well with their own classes, or their own teaching styles, and they haven't thought about using TV for small groups or individuals. Others judge the medium by commercial television's emphasis on razzle-dazzle, entertainment, and huckstering. Many more are uncertain about what to do with ITV and, so, stick to the shallows of routine usage.

Research has shown repeatedly that ITV, like books, film, newspapers, and nature itself, can help students learn. But both grave doubts about, and high expectations of, television are, as Mark Twain said about reports of his death, exaggerated. Instructional television works best for those who know how to work with it. The main problem for teachers is acquiring the knowledge, skills, and confidence needed to choose and use televised instruction so that their students *will* learn from it.

What's Ahead?

Teachers new to ITV needn't feel they're learning to swim by jumping in over their heads. Those experienced in utilizing television for teaching may want to review the common concerns involved in its use. Here is a brief table of contents for this chapter:

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Teachers' Responsibilities, pp. 95–96

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2. Using Manuals, pp. 97–98
3. Integrating ITV into the Year's Plans, pp. 98–99
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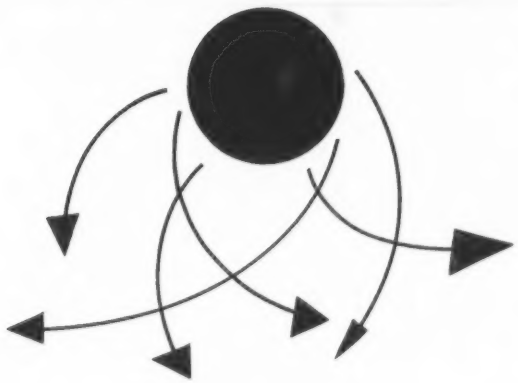
Teachers' Attitudes

Attitudes, like measles, are catching. If a teacher doesn't take ITV seriously or gives it only marginal attention, the television lesson can become a seated recess. No matter how urgently papers need grading or coffee calls from the faculty lounge, the teacher must be involved in ITV presentations; otherwise, the students, accustomed to taking television at home without much concentration, will do the same thing at school. A teacher whose attitude reflects deep interest in a program is very likely to have the viewing class, group, or single student feel the same way.

Teachers' Roles

Much earlier writing about teaching with television predicted that TV would change the role of teachers drastically, either taking away their autonomy or turning them from primarily purveyors of content into managers of student-centered learning. Most of the time, neither the threat nor the promise of this double-barrelled prognostication came true because television was used too peripherally to make much difference. As ITV becomes progressively more built into the teaching/learning process, however, the *promise* can be more fulfilled. As for the threat, so long as teachers are free to select the television series that best fill their students' needs, and also to choose from within a series the lessons that are most helpful, the possibility of surrendered autonomy diminishes.

In the meantime, television has been influencing teachers' roles in other ways that have had less notice. Teachers must now compete with commercial TV as an important source of information, whether they like it or not. From napalm and gunfights to toys that cost "only" $14.95 and breakfast cereal with built-in magic, children bring to school much more surface sophistication about the outside world than they did in the good, old pre-TV days. Teachers must help students put such information into a sounder perspective.



When students first meet instructional television, they should understand the ways in which it differs from commercial television. They should also know why a specific television program or series has been chosen, what part it will play in a course, and what they will be expected to learn from it.

Teaching, whether in person or delivered electronically, is an extremely complex process, and far less is known about productive teaching than about how people learn. N. L. Gage, who has written extensively on teaching theory, feels that a science of teaching is possible and overdue. He suggests that theories of learning will become more useful when they are transformed into theories of teaching, and that teaching theories can be derived from three main families of learning theory: cognitive restructuring, identification, and conditioning. When theories of learning are converted to theories of teaching, the focus is on the *teacher's* behavior rather than on the learner's.

Cognitive restructuring focuses on the teacher's behavior as a manipulator of ideas, that is, on the logical operations of teachers and students, e.g., inquiry, conceptual organizations, and problem solving.

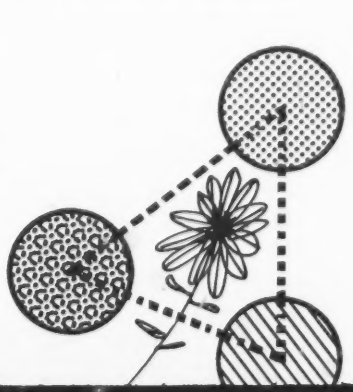
Model providing focuses on the teacher's behavior as model, that is, on the process of inducing learners to imitate what is demonstrated by the teacher, with whom the pupil identifies.

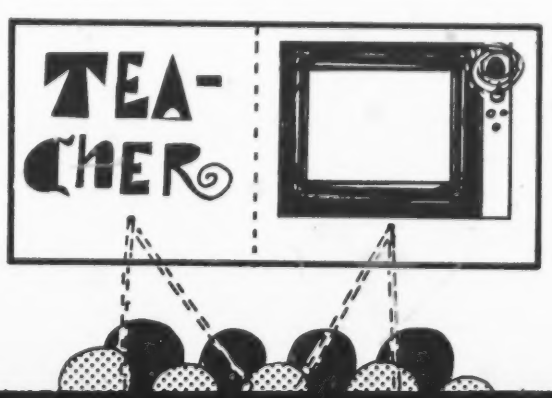
Conditioning focuses on the teacher's behavior in punishing and rewarding, that is, on the process of evoking desired responses, reinforcing desired responses, maintaining and improving desired responses, and eliminating undesired responses.

The classroom teacher . . . is forced to surrender a measure of curriculum autonomy for the advantage of a better course and for the authoritativeness, currency, efficiency and effectiveness in presentation. He is likely to be hostile to television to the degree that he conceives his principal role as that of purveying of subject matter. If, however, he can redefine his role in highly professional terms as a manager of learning situations and a counselor of learners, he will find that the transfer of responsibility for presentation to the television teacher provides him more opportunity for handling group and individual learning activities. In consequence, he will derive more personal satisfaction and fulfillment.
—I. Keith Tyler, in 1962

I can't compete with Bill Cosby.
—A teacher

What we know about learning is inadequate to tell us what we should do about teaching.
—N. L. Gage





Television offers real assistance in covering some of these bases, but so far, it has been a one-way medium. It is difficult to visualize, even in some millenium of computerized and programmed learning, a television system sensitive enough to perform the interpersonal actions and reactions essential to good teaching. Television cannot, for instance, reward a student for those first hesitant, provisional efforts and thus condition him positively to feel more emotionally secure. Nor can TV at present evaluate a student's logical operations.

However, some instructional television series do provide students—and teachers, too—with additional or alternative models with which to identify (pp. 51-52). Others have been designed to act as a focus for inquiry, or as a means of exposing students to knowledge organized according to structures new to them (See Chapter 2).

When teachers analyze a television series carefully, noting which teaching functions it performs and then concentrating on those that it does not, television makes the process of teaching much richer and more satisfying (though not necessarily any less frustrating), than it ever was.

Teachers' Responsibilities

What the teacher does in relation to any particular ITV program or series will depend in part on what curricular role it was designed to play (64-70). A *total teaching series* relieves the teacher of *all* teaching responsibilities. A *major resource series* structures the main content of the course, thus leaving the teacher free to concentrate on creating and directing individualized projects related to it. It also has to be scheduled regularly, because one lesson is built on another. The first time around, the teacher may have to be very attentive and perhaps even take notes. *Supplementary series* leave the major content to the teacher, and each program is optional, intended to add extra dimensions to the efforts of one teacher. *Enrichment programs*, as defined here, can be special assignments from commercial, or public, TV or programs actually produced by the class, using a video tape recorder.

Teachers have every right to be discriminatory in what they use in their classrooms. Just because a product is on the telly does not mean that it is good.
—Sidney Marland

I thought the program was fine, but I could see the kids turning it off so I turned it off.
—A teacher

When will we find the time to preview and plan ITV viewing?"
—A teacher

If the program is good depends on whether it holds the kids' interest so it should appeal to them or not be shown.
—Amy

I think this idea of not having time to preview is nonsense, but we are in the same boat in 'the previewing of textbooks.' I found one . . . about two reading grades above student reading level . . . it should not have been selected unless teachers had previewed it. When they did use it they found it was too hard.
—Edgar Dale

The main reason teachers did not use ITV programs was that they did not know they existed.
—Audni Beach

1. Selecting the Series

Q: Do you, a teacher, know about the huge variety of ITV programs available to broadcasters?

A: No, but I'd like to. How can I find out?

A: Yes. Our building ITV coordinator has the catalogues of the ITV libraries. These describe over 300 available series. Once a year we have a staff meeting where we recommend what we want.

Somewhere out there may well be the television series or two that can help your students learn what they need and, hopefully, want to know. Although many local stations produce some very imaginative programs, the major sources of broadcast instructional television series are the national ITV video tape libraries. The series available from them reflect many different approaches to teaching and learning, as they should in a country where people—including teachers—are reasonably free to make their own decisions. Many series incorporate the latest thinking about teaching and the structure of what is taught, and about learning and the structure of what is learned. Designed to carry different levels of the curricular load, they let the teacher concentrate on what he or she does best or thinks the class needs most.

Since broadcast ITV must cover a wide geographical area with only one channel, teachers who have access to only it are almost inevitably farther from the selection process than are those in schools or school systems that supplement the regular broadcast programs with a wider selection of programming chosen more locally.

A teacher's most direct link with the selection of broadcast ITV programs is through the school's ITV coordinator (or the principal if there isn't one), who in turn should be in close touch with the station's ITV

Like I think that the stuff is too easy and too babyish, so please make it a little bit harder.
—Bill

director, who is in charge of television for schools. Through these people, teachers can find out what's happening in the world of possible programming, can make their own needs known, and can get ideas for using what's already available. Teachers can also influence selection by conscientiously filling out the evaluation sheets included in most manuals and by responding fully to yearly surveys.

Human frailty and sheer lack of time often conspire to make teachers unaware of what is already available. Those who stay informed, who pass on whatever they think the people responsible for selection should know (whether asked for or not), and who work for better access to more information upon which to base decisions—these are the teachers most likely to find what they want on the air.

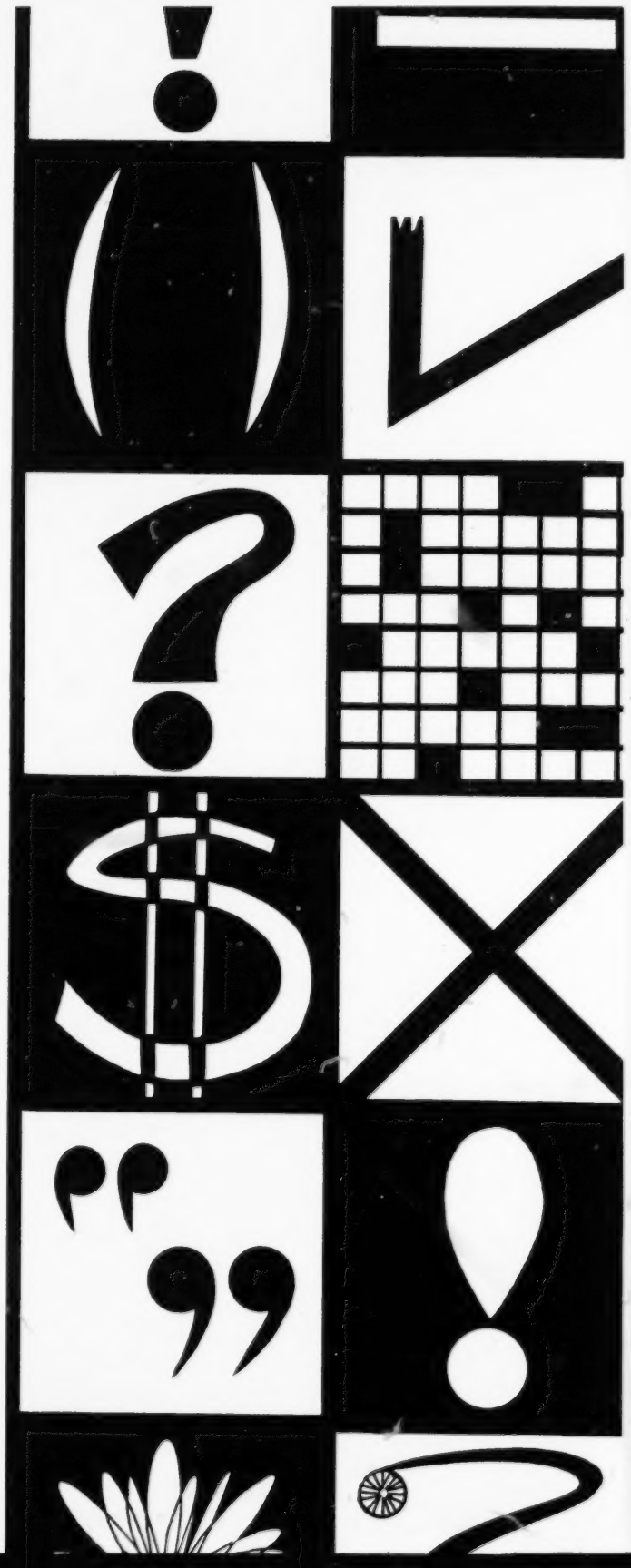
Well before the school year starts, most ITV corporations or stations send out broadcast schedules. Typically, these give titles, brief descriptions, curriculum area covered, grade level suggested, and dates and times for the telelessons that will be broadcast. Sometimes, during the last week of the school year or the first of the new, sample lessons are broadcast and teachers can assess the series themselves. Needless to say, busy as they are, teachers should make every effort to see whatever they think is a good possibility. Though previewing during the first week of school may seem slightly cliff-hanging, it does solve the problem of which students will benefit most from which series. (Certainly the students can't be assembled beforehand.)

2. Using Manuals

Q: Have you seen the manuals that go with most broadcast ITV series?

A : Manual? What's a manual?

A : Our ITV coordinator has dozens of them, both for the series we're using and for those we're considering. All the teachers in our building have



personal copies of the manuals for the series they're using. They're invaluable for teaching—for deciding which and how many students should see what—as well as for planning classroom activities to go with each TV lesson. They're even a help in making recommendations.

I could not get along without my manual. I am constantly trying to improve it and adjust it to my classes. A teacher should never ignore the manual.
—A teacher

Most broadcast ITV series are accompanied by a teacher's manual. Besides giving an overview of the entire series and its long-range aims, these guides spell out the content and specific objectives of each telecast. They tell what materials and special preparation may be needed and often include a vocabulary list. They suggest appropriate activities to use beforehand and afterward. The new-to-ITV teacher will find them indispensable; the teacher experienced with television, or even the particular series, can still rely on manuals for guidance and suggestions.

Manuals may be ordered through the principal or the building ITV coordinator.

3. Integrating ITV into the Year's Plans

Much of the worth of instructional television is not in the programs per se, but in how they're used. To be central to learning, ITV must be built in—into the year, into the day, into the student.

One of the first things a teacher should consider is what the telecasts will do. Purvey content? Show skills that students should try to imitate? Provide a new and provocative grouping of subject matter? What skills, attitudes, and knowledge can the series

No wind is good if you do not know to what port you are sailing.
—Seneca

I wonder why ITV is always thought of as another intrusion on the teacher's day and not an experience within the child's.
—C. Edward Cavert

By now our fifth grade is very skilled with our dictionary book. And we learn much more if we have the TV lesson.
—George

promote, and what integrating activities can the teacher plan for their attainment? Will television be used regularly or only sometimes? Who should see it? In short, good planning is necessary to make ITV and teachers complement each other constructively.

The beginning of the school year, when the teacher is studying the new class closely (and the class, the teacher), is a good time to form tentative hypotheses about how ITV can contribute to each student. These can be jotted down in the manual, but should not keep the teacher from experimenting further.

Without access to a video tape recorder that allows programs to be played back at convenient times, fitting the right broadcast series to the right students can be a headache. In self-contained elementary classrooms, it's relatively easy to rearrange activities to take advantage of good telecasts. Where schools are more openly organized, with students coming and going, it may sometimes seem as if only a master juggler can manage to have students see what they need. But open-classroom teachers do manage it—often with much assistance from the more self-directive students. In secondary schools without VTR's there's no need to worry. Only the students with a 10:00 English class can see the 10:00 broadcast. One reason the use of VTR's is growing rapidly, especially in junior and senior high schools, is that they make life with broadcast ITV so much easier.

4. . . . and into the Day's Plans

Essentially, building televised instruction into daily learning is creative teaching. This is usually best accomplished by pre-planning and then, with flexibility and sensitivity to student responses, by re-planning on the spot. Manuals are an invaluable

Five of my second graders who are particularly interested in science regularly go to the fourth grade to see their science series.

I may forget about it, but the kids don't.
—A teacher

You can't change recess.
—Dave Gushurst

3 R's of ITV:

READINESS—to receive the lesson

RECEPTION—active involvement with the lesson

REINFORCEMENT—to incorporate the ideas, skills, etc., into students' active, on-going learning

aid to the teacher, but they furnish guidelines, not prescriptions. For example, manuals assume that a whole class will be assigned to watch a program, but the teacher may discover that having only a few students see it sometimes works better. Also, primarily for convenience, manuals usually divide the activity that goes with each telelesson into three time periods —before, during, and after—when in reality everything should flow from a unity of purpose. And although manuals offer many valuable suggestions, what the teacher chooses to use to accompany the lesson should, like everything else that goes on in the classroom, reflect the teacher's and the students' own strengths, interests, imagination, thought, personality, and perception of students' needs. Teachers soon develop a "feel" for which of the huge number of possible classroom activities will best help a class, group, or student. Often, student-planned activities are the most fruitful.

The following suggestions may assist teachers new to ITV to integrate it into the curriculum more smoothly, and those more experienced with the medium, to broaden their range.

BEFORE

Teachers should study the manual to know the scope and objectives of the TV lesson coming up, how it fits into the flow of the year's plans, and practical matters such as the materials needed for activities before, during, and after it.

Note: Teachers should always have a Plan B to fall back on. Some day the power may go off, the ITV station may have a holiday, the wrong lesson may come on, or some other improbable goof may happen.

The week before: Interest can be aroused with related material:

Skits, bulletin boards, library reading and reports, stories, transparencies, etc.

Just before the lesson, to prepare students to learn:

Readiness: Do not pre-teach the TV lesson. Pupils may get bored and turn it and you off. Make transition from previous activity. Prepare students to look for, not at, by—

Raising questions, posing problems to consider, discussing relevant aspects

Making listening assignments in advance, based on looking for—

Points of agreement
Points of disagreement
Additional information needed

Forming buzz groups to raise questions that the telecast may answer

If continuity is important:

Review by taking a new view
Supply necessary background (from the manual)

Vocabulary: "Do you know these words?" Or a multiple choice test, not graded
Names of places, people, dates
(Ways to introduce: Pre-program quiz; lists, mimeographed, verbal, on chalkboard)

Arrange supplies needed during and after the program
Arrange the physical environment for as comfortable, distraction-free viewing as possible. (See pp. 105–108.) A student committee might be responsible for arranging the room, turning on the set, etc.

DURING

Reception: During the lesson, the teacher is still teaching by precept and example; is responsible for maintaining attitudes, conduct, and attention most conducive to learning, and for encouraging active (though orderly) participation.

Teacher as viewer:

Encourages and controls response by attentiveness, interest, appropriate active participation as suggested by the manual

Teacher as observer:

Notices student reactions

Anybody puzzled, lost?
Fast learners bored?

Attends to content

Lists vocabulary and concepts that may need explaining, clarifying

Lists conflicts in content—within the program, between the program and what the students already know

Lists questions that need answering, problems that need solving

Notes ways that individual differences can be capitalized on afterwards

Notes experiments and projects that can be undertaken

Teacher as manager:

Notices student needs; supplies missed word, replaces broken pencil, unobtrusively

Notices discipline problems and deals with them promptly

Hardware heaven:

When appropriate (to learn skills or a foreign language, for instance, where close and repeated observation is valuable): Tapes all or part of lesson on audio or video recorder for future repeated playbacks

AFTER

Reinforcement: Do not re-teach. Pupils may get bored and turn you off:

When choosing from the hundreds of activities that can extend the televised learning experience, always keep in mind what students need to learn and what the lesson was designed to teach. Many telelessons require only a short discussion. ("Sesame Street" and "The Electric Company" are complete in themselves.) Each lesson in a weekly major resource or total teaching series can (and should) generate a whole week's activities on the topic. Some programs spark projects that culminate in a special presentation, like an assembly or a display. Others can set off activities that continue, either regularly or intermittently, for a long time. After a program on weather prediction, for instance, students might build simple instruments that they can use for making predictions throughout the year. They may even plot charts so that they can check their predictions later.

Immediately after the lesson: Turn off the set (delay can cause distraction):

Quick appraisal to see what needs strengthening, clarification

Possible questions and ways to bring out reactions

When you turn off the set, you don't turn off the lesson.
—MPATI

. . . one of the hazards is simply that of going over any lesson again. . . . Students who know the material . . . are bored.
—Edgar Dale

Suggestion:

Jot down in the manual matters for further discussion. Summarize and evaluate (including pre- and post-ITV activities) for the next time around.

To relate television to class activity: "What were the big ideas you got from the telecast? Why do you think we took time to view it? How does it apply to the work we're doing now?"

To evaluate ideas: "In what order would you rank the most important things the telecast brought out?"

To help students internalize the lesson: "What gave you the strongest feeling about this problem?" Have students take various roles from the televised situation and say how they felt under various conditions. ("Put yourself in the other person's shoes.")

To obtain a class reaction: Organize class into buzz groups to raise questions about the lesson. Have a panel of students ask questions of the audience when it is over.

To foster critical thinking: Have students compare alternatives that were presented, or think up alternatives to what was presented.

—Adapted from Harold E. Wigren, "Some Suggested Techniques for using ITV more Effectively"

List as the basis for further activities: Uncertainties, additional information needed, important points of interest to pursue

Practice if needed to fix the concepts or skills presented

Test occasionally, if and when it seems indicated

Further Activities: These may be carried out by—

1. The whole class

2. Small groups: Students might choose their own groups, or the teacher could divide them in various

ways—into slow, average, and fast learners, for instance, with more abstract projects for the more academically minded and more concrete ones for the non-academic. In such groups, students can interact more, react to and learn from one another. Small groups can foster self-confidence, cooperation, development of communication skills.

3. Individual projects: These take maximum advantage of different students' talents and give them practice in planning and carrying through work on their own. Such projects help to turn the mass medium of ITV into truly individual learning.

KINDS OF ACTIVITIES:
"Each one teach one"—or more

Discussion:
- question-answer sessions, student- or teacher-led
- small group "buzz sessions"
- "buddy system": Two people plan a report, fill in the blanks, act as interviewer-interviewee, etc.
- panels, discussion or quiz
- debates
- oral reports
- comments or reports from clubs or other special interest groups, on-going or based on the lesson or series
- mock legislative sessions

Dramatization and performance:
- puppet shows
- shadow plays
- charades
- role playing
- skits, plays, pageants
- mock TV shows about someone in a particular field or a public or historic figure: "This is Your Life"; "I've Got a Secret"; "To Tell the Truth"

Music:
- singing
- choral reading
- instrumental music, rhythm band or violin

Dance:
- folk
- square
- modern

Demonstration:
- experiments, one-time or continuing
  - chemical analysis
  - growth experiments with live animals
  - planned short-circuit
- observation of living things
  - aquariums
  - terrariums
  - plants
  - insect colonies
  - cultures
  - plants
  - pets (hamsters, turtles, goldfish, etc.)
- building a simple machine
- fairs and exhibits of projects

Writing:
- stories
- poems
- plays
- jingles
- reports
- radio, TV scripts
- themes
- summaries
- news items
- crossword puzzles
- newspapers—stories can be a class project
- factual, step-by-step report of development

Visualization:
- painting, drawing
- sculpture
  - mobiles
  - stabiles
- cut-outs
- puzzles
- models
- charts, graphs
- bulletin boards
- posters
- masks
- designing games
- block printing
- mock-ups
- collages
- diagrams
- dioramas
- metal tooling
- stenciling
- etching
- mounting and labeling (insects, shells, etc.)
- scrap books
- samplers
- mosaic: paper, vinyl, tile, eggshell, ceramic, seed, noodle, tinted sand
- maps—making or marking

Reading:
- research
- reference
- aesthetic enjoyment
  - books
  - newspapers
  - encyclopedias
  - literature

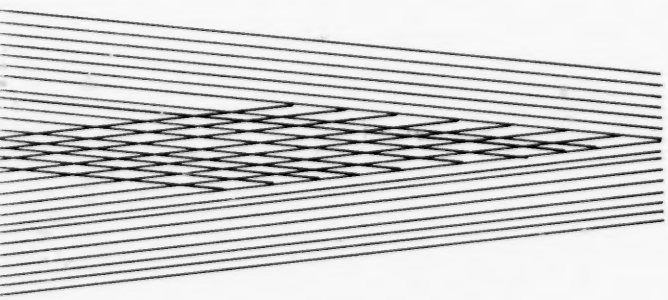
Other teaching materials:
- films
- film loops
- slides
- tapes, audio and video
- simulations
- picture files
- maps, globes, etc.
- educational games
- programmed learning
- independent learning
- educational boards
  - bulletin
  - magnetic
  - flannel
- overhead opaque projector

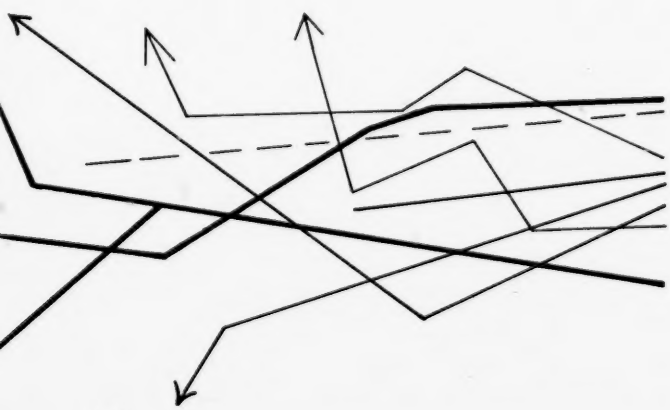
Additional resources:

school personnel	field trips
other students	related assembly programs
community, industry resources	

ABOUT TAKING NOTES

Because the room does not have to be darkened, it is easier to take notes while watching television than while seeing a film. Nevertheless, teachers should think carefully about where they want students to put what proportion of their attention, and whether recording information takes precedence over absorbing what's being shown on the TV set. Secondary students will probably have more occasion to take notes than will those who are younger; generally speaking, note taking while watching TV should be carefully limited and directed. Younger children (below the seventh grade) often become so busy recording that they forget to watch. But as students become progressively more responsible for their own learning, watching television can provide the opportunity for a student to learn to take notes selectively.





Some aids for beginning note-takers

Examples on the chalkboard or overhead projector
Preprinted outlines
Preprinted study sheets, to fill in the blanks

Criteria for students at any level

Notes should be—
- Clear when "cold"
- Brief and focused on central ideas

Notes should have a purpose beyond impressing the teacher:
- To record main ideas
- To define vocabulary
- To help review for tests
- To provide extra credit
- To record special assignments

5. Setting the Scene

Human beings need to see, hear, and react in order to learn. Wherever students see ITV, their physical surroundings should be planned around these basic needs. Some conditions to think about:

LIGHTING

The TV picture should be bright enough to hold attention; other light, low-normal, bright enough for note taking and other activities connected with the lesson.

GLARE

Glare can make viewing difficult to impossible. Check the picture from various spots around the room during the lesson. Glare has two main sources, windows and electric lights.

To control window glare, place the set in a corner between a wall and the window, angled 15 to 45 degrees away from the window. If this doesn't do it well enough, you may have to pull some shades or draperies, use a screen or improvise one.

To control electric light, tilt the set slightly downward. If necessary (and possible), slip some erasers under the back of it. If that doesn't work, shade the set with a cardboard strip attached to the top, extending out about 7 inches.

SOUND

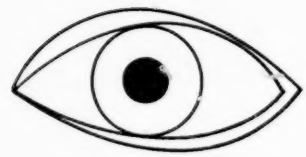
Check during the program to see if the sound level is distinct but comfortable. Try to keep out distracting noises. (If interruptions are a problem, or the halls are noisy, have a student hang a sign on the door, asking for quiet.) If the room's basic acoustics are bad, bug somebody for draperies, blinds, carpet, acoustical tile, etc.

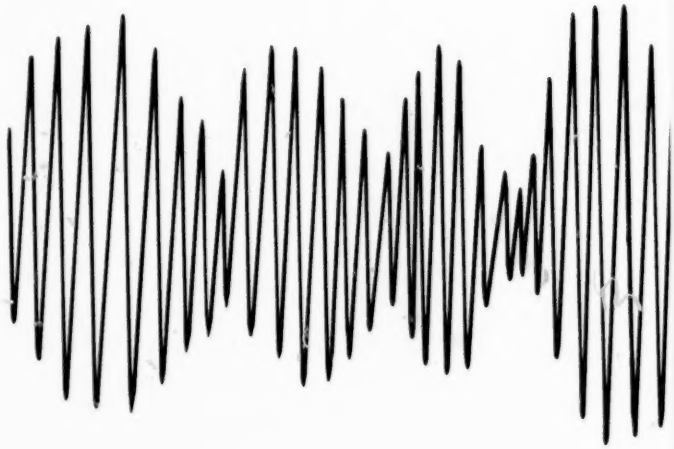
VENTILATION

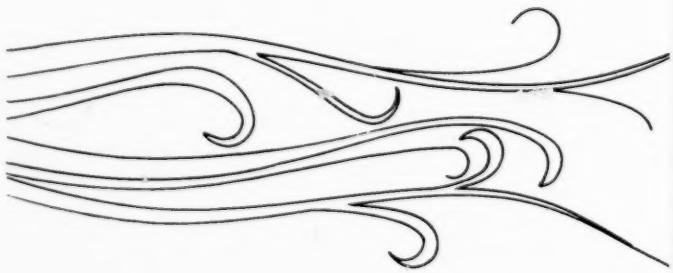
Stuffy rooms make sleepy students, and alert learners learn more. Check to see if some change you made for the ITV lesson—shutting the door, for instance—calls for a further change, like opening a window.

Arranging the room for TV viewing

Teachers are inured to practicing the art of the possible. They realize that precise recommendations concerning the number of students that should watch ITV programs, in what arrangements, and on various sized screens are only guidelines. Many factors in any real-life classroom situation can affect how many pupils sit where in front of a set. What the students will be doing as they watch may determine the way they're grouped and the space they need. Those with vision or hearing disabilities should have seats near the set. Both the size and the







Discipline? It depends on how many you have crammed in front of a set.
—A teacher

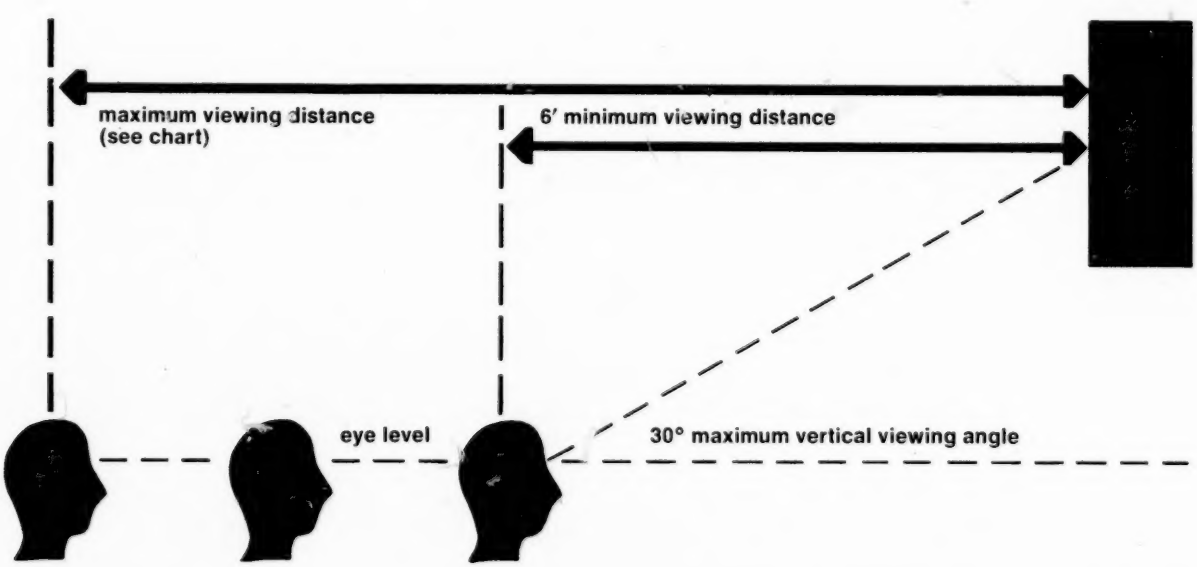
age of students affect how many can watch together. Building and fire codes, even the need for other people to get in and out of the room, may set further restriction.

What students will be doing during or after a telecast can affect viewing arrangements, too. They may need space and equipment to work with something messy like clay. They may need to take notes, or to act out movements demonstrated in the lesson. Whatever the activities that accompany the television lesson, they should be arranged for as conveniently as possible.

Information on viewing angles and seating distances from *Design for ETV*, Educational Facilities Laboratories, Inc.

VIEWING ANGLES. How students perceive the flat, rectangular television screen depends upon where they sit in relation to it.

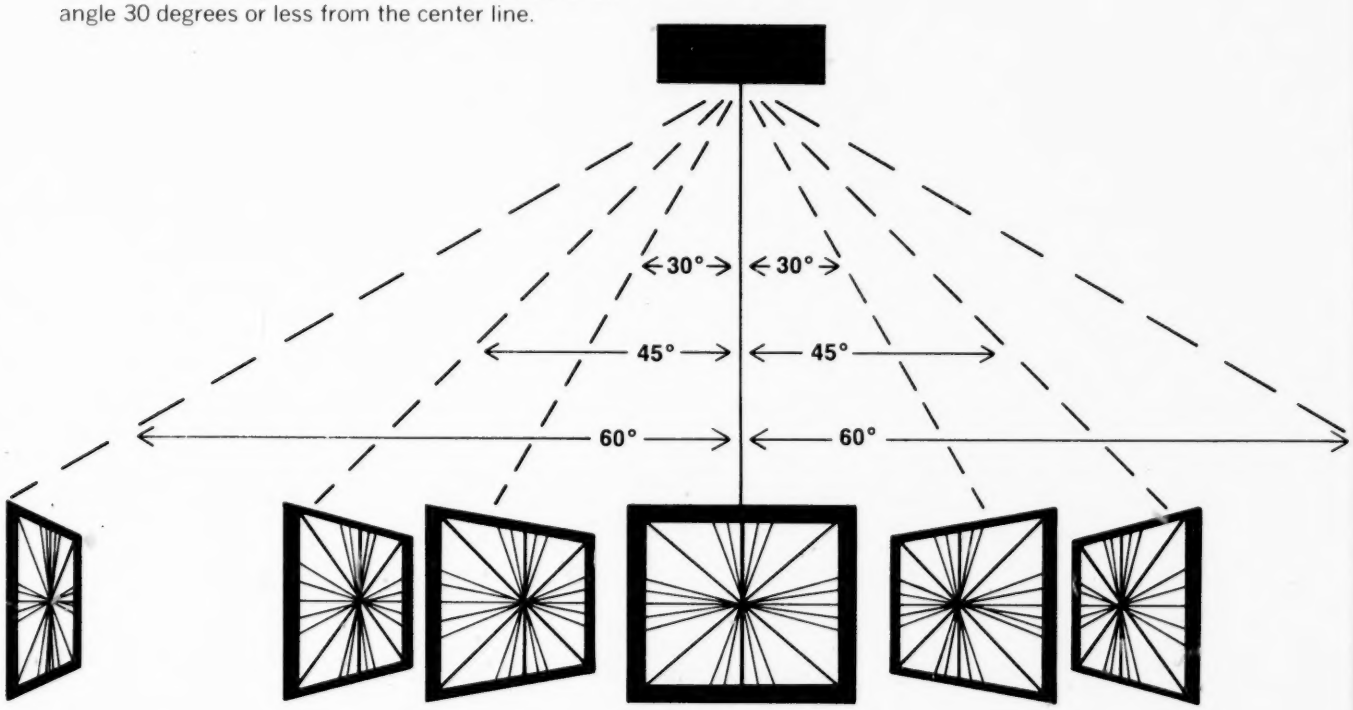
Minimum distance and maximum vertical angle: No students should sit closer to the set than 6 feet or have to look up at an angle greater than 30 degrees from eye level to the top of the screen. For a very rough rule of thumb, sets should be from 1 to 3 feet above the eye level of the average student. Calculations involving size of screen, kind of seating, and average student height by grade level indicate that for first graders watching a 23-inch screen from arm chairs, the bottom of the set should be 5¾ feet from the ground; for sixth graders, about 6 feet; for high school seniors, 7 feet.



size of television tube (measured diagonally)	maximum viewing distance	number of viewers chairs 3′ spacing	table arm chairs 4′ 4″ spacing	desks and chairs 5′ 2″ spacing
19″	15′ 2″	38	26	21
21″	19′	54	36	29
23″	19′ 4″	56	38	29
24″	21′ 5″	72	52	34

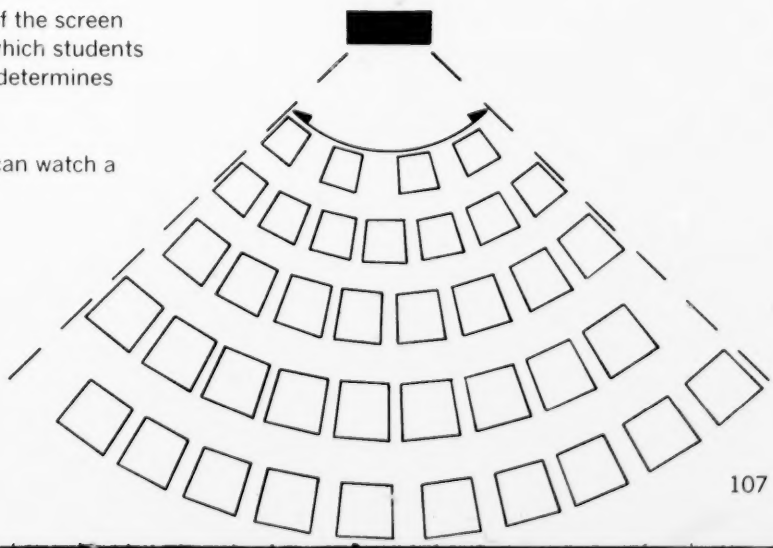
HORIZONTAL VIEWING ANGLES

Most ITV can be seen satisfactorily from within 45 degrees of a line drawn perpendicular to the center of the picture tube. Beyond that, distortion is severe enough to interfere with learning. When a very accurate view is important, students should set at an angle 30 degrees or less from the center line.

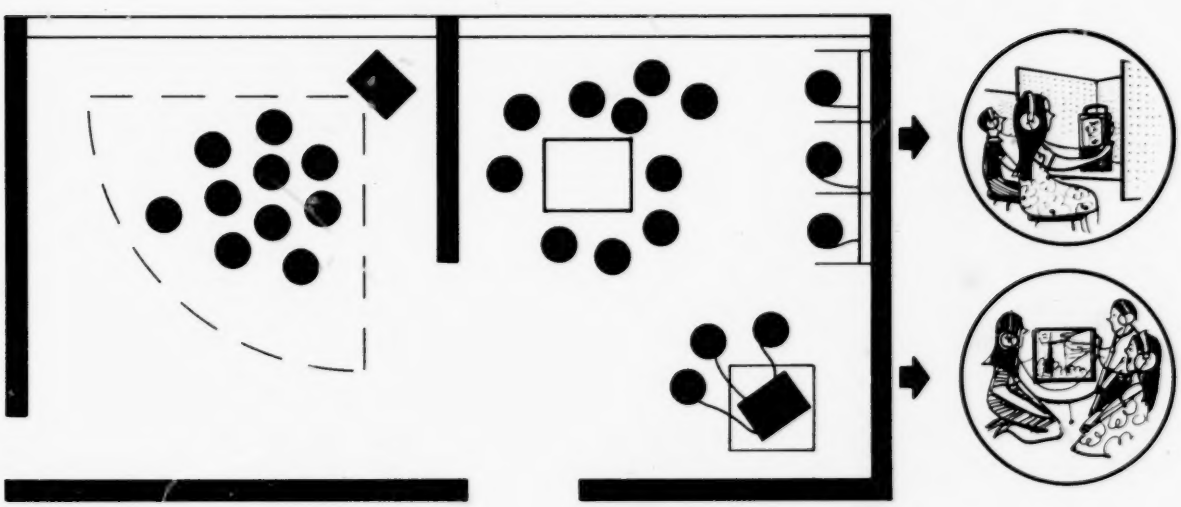


SEATING ARRANGEMENTS. The size of the screen determines the square footage within which students can see easily, and the kind of seating determines how many fit in.

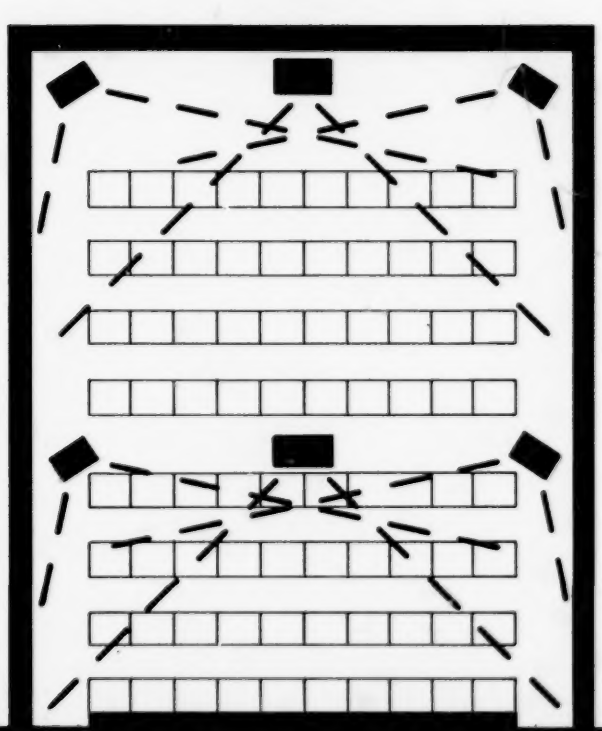
In a typical arrangement, 38 students can watch a 23-inch set from tablet arm chairs.



When less than the whole class watches:
Especially in a divided classroom, one group of students may watch ITV while others do other things. A smaller group can, by using earphone jacks plugged into the set, watch in any kind of room without disturbing others. Individual students may use study carrels designed to accommodate a television set.



Larger group viewing:
In an auditorium, sets can be positioned overhead in multiples (here, multiples of 3) so that everyone has an acceptable view.



TUNING THE SET

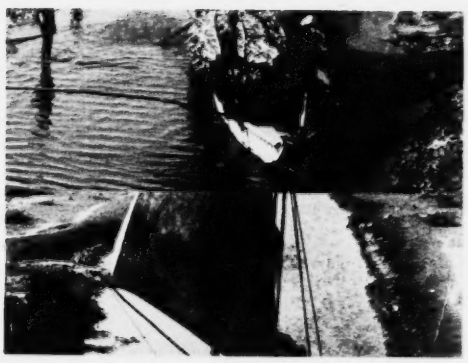
Some troubles with the TV picture can be cleared up by tuning. The most stable results are achieved by rotating the control past the best adjustment on each side and then setting it midway between the two points where distortion begins.

FINE TUNING

Corrects a picture that is fuzzy and lacking in detail. Like this one, it is often accompanied by horizontal bars that vary the sound, or by weak or fuzzy sound. Fine tuning is also the first control to adjust when trying to eliminate vertical roll or horizontal breakup.

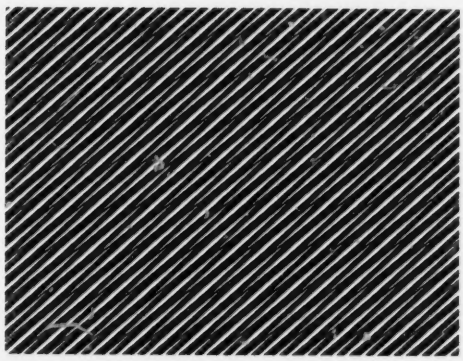
BRIGHTNESS

Aim for the lowest setting where details in dark areas are clear. This adjustment will vary with the amount of light in a room.



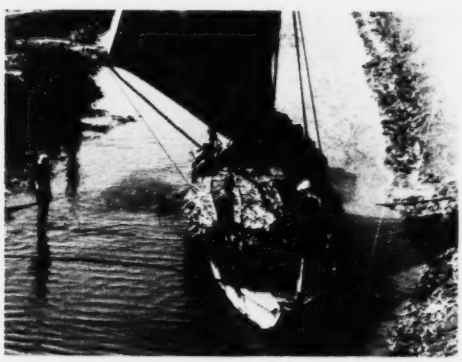
VERTICAL HOLD

Corrects rolling of the picture, but this control should not have to be adjusted frequently. Try fine tuning first.



HORIZONTAL HOLD

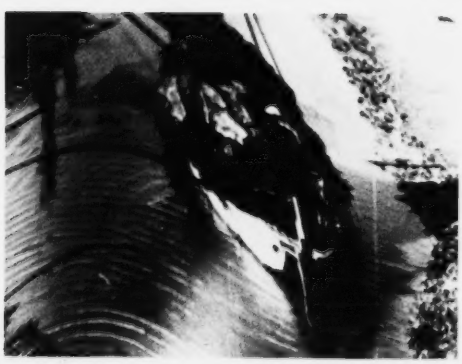
Eliminates horizontal tearing, distortion of the picture to the side, and diagonal lines like these. Again, try fine tuning first.



FINAL CHECK

Picture is in good adjustment. Sound level is easy to hear but is not excessive.

Other kinds of poor reception originate with the antenna. When only "rabbit ears" are involved, try turning the antenna or moving the set to another location. If the trouble persists, a change in antenna system may be required. Report the condition to the ITV coordinator or the principal.

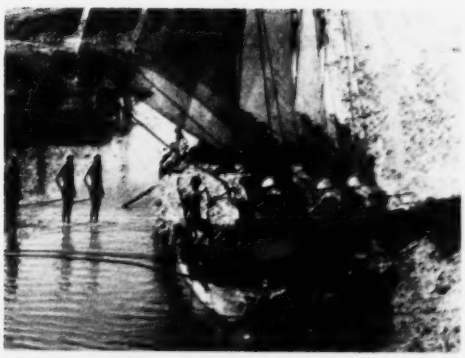


TOO MUCH SIGNAL

When the distortion shown here does not respond to adjusting the fine tuning or the horizontal hold, it results from reception of too much signal from the station. Before reporting it, try disconnecting the antenna from the set.

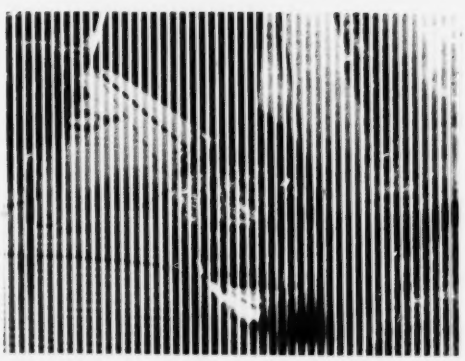
SNOW

A washed-out image with granular spotting can be caused by reception of a weak signal, even in some areas not considered too distant from the station. First step is to check the antenna connection at the back of the set. It may be loose.



GHOSTS, OR MULTIPLE IMAGES

These are produced by the antenna's receiving signals reflected from tall buildings, hills, and even airplanes. A more directive antenna may be required.



CO-CHANNEL INTERFERENCE

More noticeable in early spring or fall, this pattern is caused by interference from another channel. A more selective and directive antenna will correct it.

INTERFERENCE

Usually temporary, this pattern, or rolling and tearing of the image, can be caused by automobile and other engines. Again, the proper antenna can eliminate the condition.

Adapted from material prepared by C. Edward Cavert for "Project ASERT," Lincoln Public Schools, Lincoln, Nebraska.

TROUBLE-SHOOTING GUIDE

1. Turn on receiver. (Is it plugged in?)

2. Allow a few seconds for the set to warm up. (Is tube bright?)

3. Select channel.

4. Adjust control contrast (if needed).

5. Adjust brightness (if needed).

6. Tune picture. For best picture use fine tune control—turn until harsh interference occurs ("wormy picture"), then turn slowly back, stopping *as soon* as interference disappears and picture is clear.

7. Turn up volume (not too loud).

Possible Problems

1. No picture, no sound	a. insufficient warm up b. set unplugged c. fuse blown (call principal) d. receiver faulty
2. Sound, no picture	a. contrast or brightness on too far b. wrong channel—sound leak occurring from next channel c. antenna disconnected at back of set d. set faulty
3. Sound fuzzy	a. re-tune channel b. adjust volume knob c. loose tube d. speaker cone damaged dirty volume control —call service man
4. Sound cuts on and off	a. loose tube b. faulty volume control —call service man

—Robert Wood

Suggestion: Tear this page out and attach it to the TV set.

. . . one of the problems is to determine what differences in learning are really due to television and what . . . to other factors that have nothing to do, necessarily, with television.

* * * * *

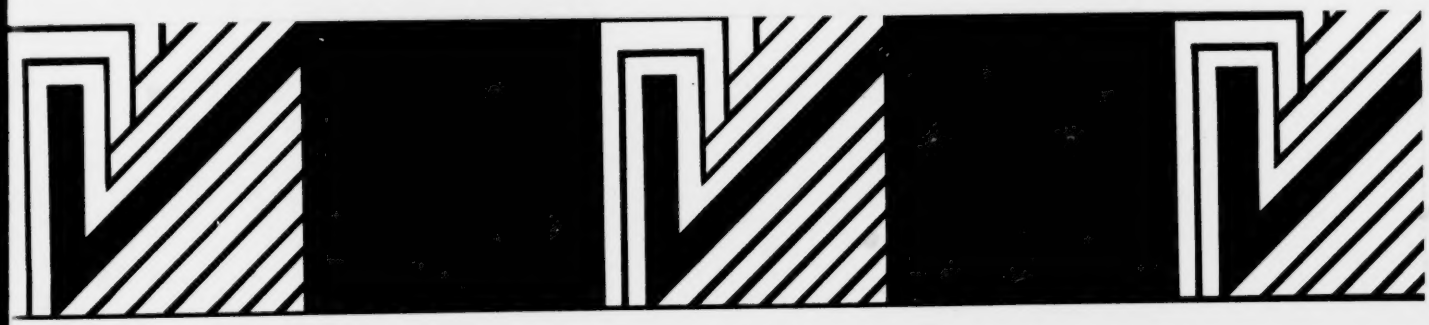
The quality of an answer can rarely rise above the quality of the question.
—Keith W. Mielke

Television can be a help or a waste of time.
—A teacher

Unless proper communication can be achieved between the originators of TV lessons of any kind and the educators using them, save the electricity and wear on your video tubes, forget ITV and return to conventional classroom formats.
—George Gordon

Has Chapter Three of a standardized text ever been evaluated as critically as Lesson Three in an ITV series?
—Alan Stephenson

Who's tired of a series, the students or the teacher?
—A superintendent



6. Evaluating Programs

Whenever an attempt is made to measure the learning that occurred as a consequence of televised instruction, teachers play a key role. Only they are able to report on what took place so that the proper measurements can be made. Even when no such study is underway, trying to evaluate as objectively as possible what a program and/or series contributes to student learning is an important part of using ITV.

Evaluation is neither polite praise nor creative sarcasm. It is an attempt, above all, to decide objectively whether students learned what the lesson was meant to teach—and if not, why not. Describing what happens as accurately as possible is a necessary first step. Then what needs to be changed can be identified, separated out, and if possible modified or replaced.

TV programs are only part of what should be evaluated. The whole viewing situation—including the teacher, who, after all, is the easiest element for the teacher to change—contributes to the good, poor, or mediocre use of instructional television and should be examined searchingly from time to time. Ask the kids to write or discuss what *they* think about ITV programs, classroom activities, and viewing conditions. Some of the answers may surprise you.

This was an excellent summary of our study. It brought in new insights and cleared up questions.
—Marla, in high school

I thought it was boring, maybe if I had tried harder I would have gained something from it but I didn't.
—Judy, same program

Over-all, 50-50.
—Joseph, same program

It told about a lot of things I hadn't thought about. They talk like they are reading their cue cards for the first time.
—Chris

I agree.
—Chris's teacher

I think the discussions we had on this play were very good.
—Janine

These checklists can help teachers new to ITV to establish effective habits. Old hands may want to look them over: Something may be missing that could make a difference. Even the obvious can be overlooked.

EVALUATION CHECKLISTS	OK	Needs Work
VIEWING ARRANGEMENTS		
Adequate view for all students	____	____
Light	____	____
Ventilation	____	____
Temperature	____	____
Receiver		
On and adjusted in time	____	____
Adjusted satisfactorily	____	____
Trouble fixed ____		
Trouble reported ____		
THE LESSON—CLASSROOM PORTION		
Before: Readiness		
Teacher:		
Viewing objectives established	____	____
Ways to integrate chosen	____	____
Decision on who's to view made	____	____
Needed materials collected	____	____
Alternative decided on in case of trouble	____	____
Students:		
Review		
Background—vocabulary, concepts, etc.	____	____
Viewing assignments/things to look for	____	____

	OK	Needs Work
During: Reception		
Teacher:		
Active involvement	____	____
Notes for followup	____	____
Students:		
Appropriate group chosen to view	____	____
Involvement and interest	____	____
Participation	____	____
THE LESSON—TV PORTION:		
Sustained interest	____	____
Filled some student learning need	____	____
Allowed teacher to take some needed role	____	____
Importance justified time spent	____	____
Appropriateness of level	____	____
Organization	____	____
Visuals	____	____
Pacing	____	____
After: Reinforcement		
Discussion	____	____
Assigned projects	____	____
FINAL ESTIMATE: Did students learn what the lesson was designed to teach?	____	____

7. Communicating with Parents and the Community

Parents tuned in to the school's plans for their children are likely to be more cooperative parents. Communities that know what the schools are doing—and why—are quite likely to give schools what they need. And instructional television can be used to tell parents and the community about what is going on in school.

Schools and systems with any kind of ITV production capability, even a portable video tape recorder, can tape something relevant (e.g., the class play, an ITV lesson with its classroom preparation and followup, even one child's particular learning problem) for showing at a parent-teacher conference.

To see material on video tape recorders, closed circuit TV, or an ITFS system, parents and other groups must visit the schools. But in cities with cable television, people can view the news and activities of the schools in their own homes.

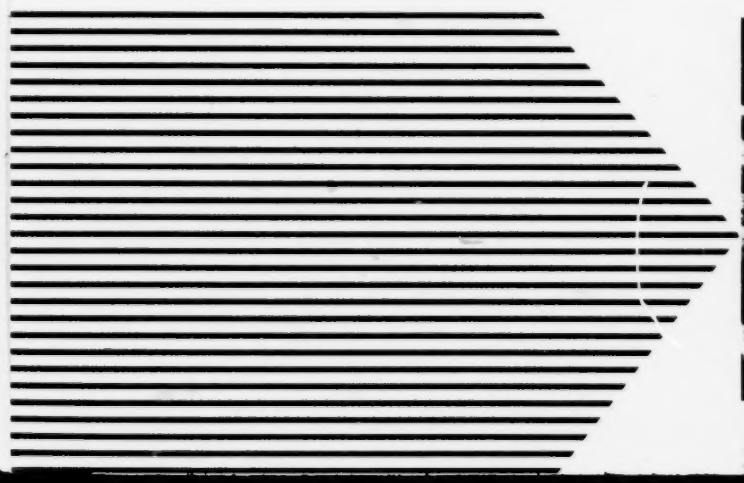
Broadcast ITV has a rarely exploited asset: anybody can watch. And since television sets outnumber bathtubs in this country, chances are good that most parents and taxpayers can see what children are learning via TV at school (they cannot, of course, observe the classroom accompaniment). When parents become involved with what their kids are involved in, school and learning (not necessarily synonymous) can become more real and intriguing parts of children's lives—parts often previously closed to parents.

Periodically throughout the year parents should be told about students' progress in televised subjects. Elementary teachers may want to have children write letters home to arouse parental interest. Secondary teachers may choose to send mimeographed forms supplied by the building ITV coordinator.

There is too much public indifference toward public institutions, too little sense of responsibility to make them work and too much willingness to criticize without understanding.
—John Ellis

Educators have come to recognize that *informed* parents and taxpayers are likely to be more understanding and supportive of the schools' efforts, and that parent involvement during (and even as a forerunner to) the formal teaching process is highly desirable.
—Gabriel H. Reuben

PTA's love to see their kids in action. Showing a class on TV or a VTR will bring them out in the middle of winter.
—Jim Bailey



SAMPLE LETTER TO PARENTS

Dear _____.

As part of _____'s study this year he/she will be watching _____ (series) _____ on Channel _____ at _____ (time) _____ on _____ (day of the week) _____.

I do hope you will find the time to watch (occasionally) and talk with _____ (child's name) _____ about the program and what we are doing in relation to it. An interested parent is a teacher's best friend, and television is an easy way to keep in touch.

Sincerely,

(you)

_____

WHAT HELP TO EXPECT FROM ITV PERSONNEL

Teachers can do a lot, with or without ITV, but they can't ever do everything. Specifically, they can't use instructional television very well without a little help from various ITV personnel. At the very least, they need backup; ideally, they could use informed and intelligent leadership—lots of it.

From the ITV corporation or station, via building ITV coordinator, teachers should be able to count on having—

Software:
Information well in advance of the school year about available series
- Time of day and day of week
- Suggested level (audience)
- Subject area
- Type of series (major resource, supplementary, etc.)

Manuals
Feedback sheets for evaluating programs
Some in-service training in the use of ITV
Some liaison with ITV personnel

Hardware:
Prompt maintenance for any problems past the first-aid trouble-shooting stage, including telephone numbers to call, etc.

More stations or school administrators are providing—

Software:
Previews of programs to be aired the following school year

More voice in selection, via
  Surveys of teachers' programming needs, including preferred teaching philosophy, level of series (major resource, etc.), and scheduling preferences
Systematic criteria for selecting programs
Systematic evaluation, with the help of the teachers, of programs
In-service training that brings to teachers the latest in ways to use ITV
Other in-service training in new subject organizations, teaching techniques, etc.
More extensive, more meaningful liaison with ITV personnel who can help teachers keep up with what is going on and show them new ways to use it.

Hardware heaven:
As we move increasingly into technologically assisted teaching and learning, the ITV corporations, networks, and stations are becoming important sources of information, evaluation, and specifications for alternatives or additions to broadcast instructional television:
  ITFS (Instructional Television Fixed Service, or 2500 megaHertz, or short-range broadcast television)
  CCTV (Closed Circuit Television)
  CATV (Cable Television, i.e., Community Antenna Television)
  VTR (Video Tape Recorder)
  ATR (Audio Tape Recorder)
  Cassettes
  Cartridges
  Individual learning carrels
  Etc., etc., *ad infinitum*
They are also becoming a source of facilities too expensive to duplicate in individual schools:
  Tape libraries of locally produced shows, not competing with national and regional instructional tape libraries
  Special equipment, which can be lent to schools for special occasions or which schools might come to the station to use
  Dubbing centers

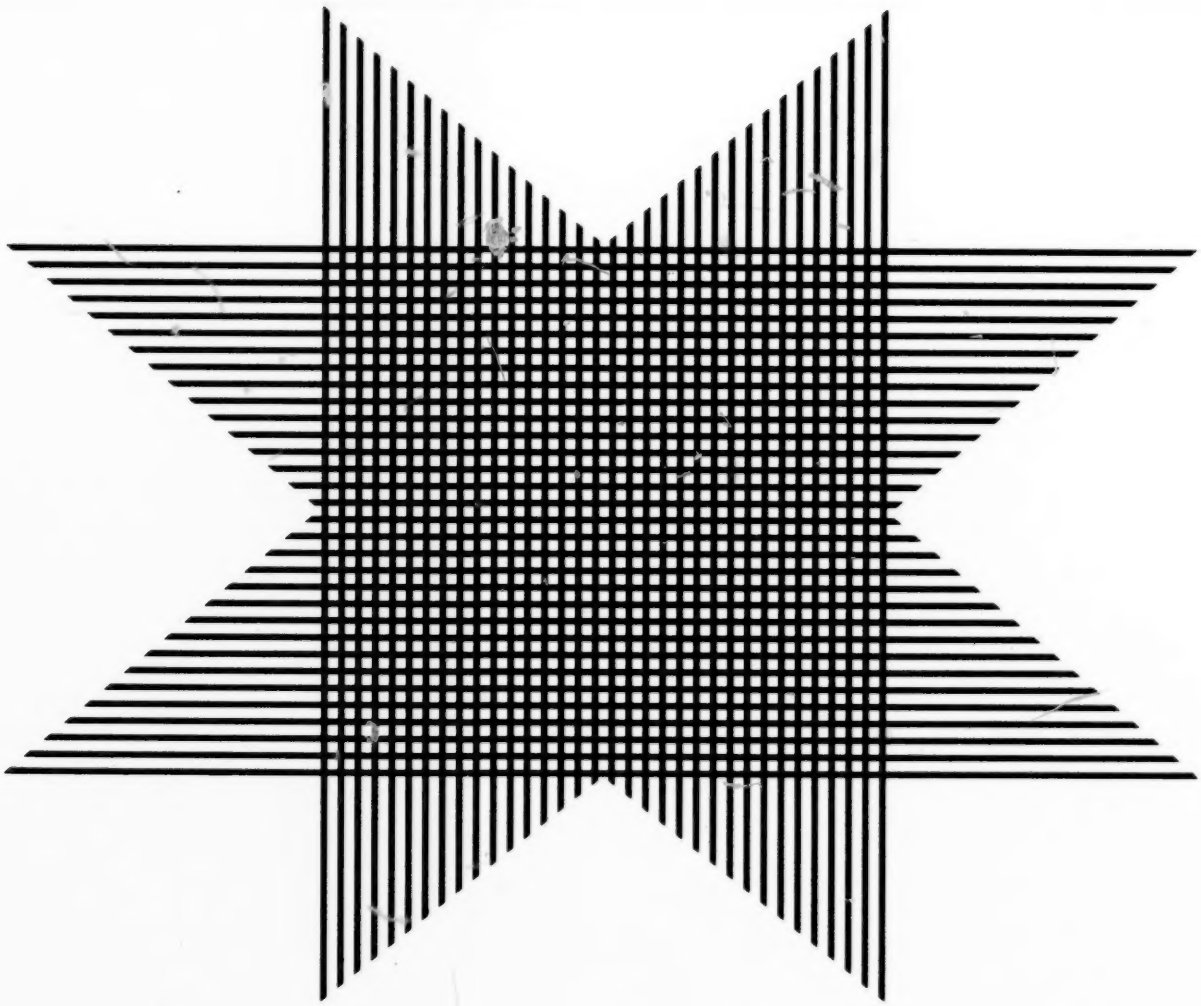
Software:
Manuals for individual programs
Scheduling coordination
  Over the years, so that the same students don't see the same series repeatedly unless a teacher intends them to
  Over the day, so that sets are available when teachers need them
  Among subjects, so that students will be able to see the ITV lesson they need to see instead of being at lunch or the library when it's on
Curriculum aid, so that ITV and classroom activities are articulated smoothly, even if that means restructuring subject matter over several years
Endless enthusiasm, guidance, sympathy, moral support, handholding, and so forth.

Not exactly heaven, but nice:
A library of series manuals and books about ITV that teachers can look over, either as a permanent fixture or as a temporary display
Samples of promising series to be shown periodically

Hardware:
The best and most trouble-free viewing equipment the school can afford
Prompt troubleshooting beyond the level a teacher can manage

Hardware heaven:
In planning for learning, budgets for ITV and related hardware should be proportional to the learning they can accomplish. This includes consideration of—

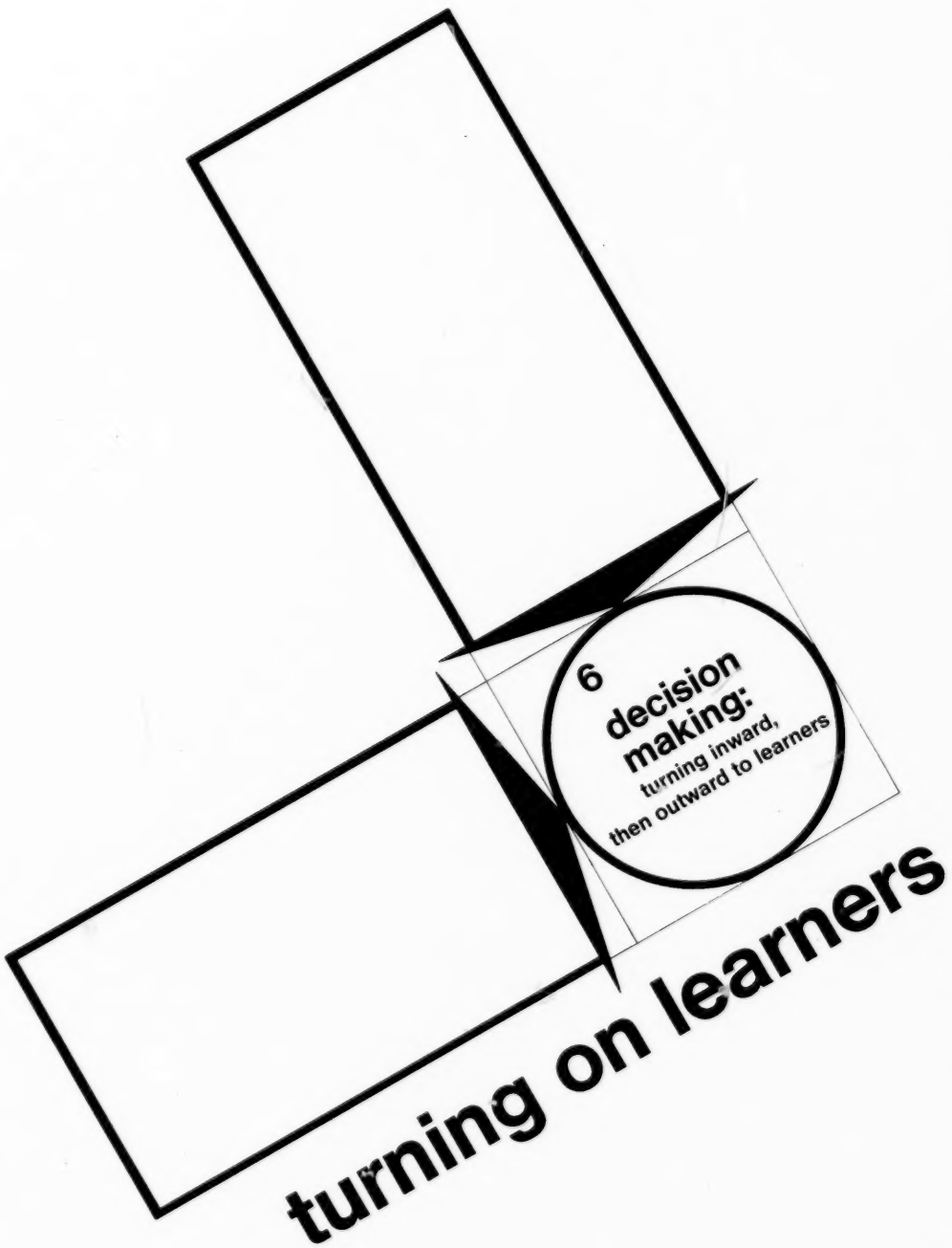
Additional and/or alternative systems to broadcast ITV
Adequate viewing facilities
Video tape recorders
  For recording lessons for future playback to increase flexibility
  For classroom use so that teachers and students may become their own producers or record their own performances for analysis



Getting ITv Together

With or without ITV, teaching and learning are far too complex to be reduced to a series of recipes. Nevertheless, this chapter can be dipped back into, browsed for ideas, or referred to for specific information much like a cookbook. Hopefully, teachers new to ITV can use it to acquire a command of the basics and the confidence to experiment, while those used to putting the varied ingredients together may find new possibilities with which to extend their range.

But using ITV well is no more an end in itself than is making a superb Baked Alaska or an outstanding apple pie. Basically, food is made appetizing so that people will eat, and ITV is provided so that students will learn. Which brings us to . . .


6
decision making:
turning inward, then outward to learners
turning on learners

Our age is characterized by the perfection of means and the confusion of goals.
—Albert Einstein

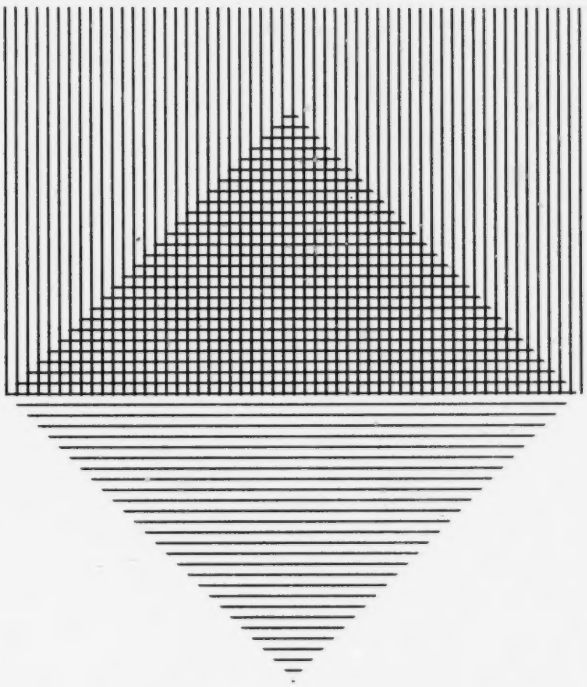
If you don't know where you're going, any road will get you there.
—C. Edward Cavert

6 decision making: turning inward, then outward to learners

In terms of the curriculum decision-making model on which this book is based, we have come to the core of the process—decision making. On what basis do we make instructional decisions? Do we really hold learners' needs as the highest priority of consideration when making decisions?

Although almost unbelievable, studies show that teachers make approximately 2,000 decisions per day! Obviously, then, we all need some kind of a broad philosophical stance upon which to draw if we are to maintain our sanity or at least be reasonably rational. This stance is primarily composed of our perceptions: what we feel our society and the individuals within it most need (the long-term aims of education); the kinds of learning experiences we feel are most productive; and the conditions, or environment, that we feel are most conducive to significant learning.

Since most readers are already deeply involved in designing or perpetuating a curriculum, a chapter outlining how to diagnose needs, plan fruitful learning experiences, and create the conditions for learning should be unnecessary. Instead, this chapter is meant to be a springboard to induce a process of honest introspection—a private assessment of the framework within which we all constantly make decisions.



[Education's] prime objective must be to increase the individual's "cope-ability"—the speed and economy with which he can adapt to continual change.
- Alvin Toffler

What tomorrow needs is not masses of intellectuals, but masses of educated men—men educated to *feel* and to *act* as well as to think.
—Charles Silberman

What is most essential is for the youth to see that he is taken seriously as a person, rather than fitted into an institutional system.
—Paul Goodman

The aim of education should be to teach the child to think, not what to think.
—John Dewey

Turning Inward

The more thoroughly we evaluate (or at least raise to the level of conscious consideration) our deep-seated beliefs regarding what is really worth knowing and how it best can be learned, the better we should be able to make consistent, rational decisions—both the carefully considered major curriculum decisions and the inevitable split-second ones that bring curricula to life. The following purely introspective questions are some of the many we might all ask ourselves repeatedly if we . . . and our students . . . and education . . . and society, for that matter . . . are to be self-renewing.

Do I really try to understand the world in which my students are living today?

Do I see developing in the 1970's a cultural trend toward more humanistic concerns, such as: more enjoyment of now; meaningfulness in every aspect of life; expression of, and respect for, feelings as well as facts; respect for, and protection of, the different or divergent; trust in oneself as a decision-maker; acceptance of personal responsibility for one's own behavior, free from majority pressure; release rather than restriction? (If not, what *do* I see?)

Do my students hold this more humanistically oriented view of society? (Do I?)

Do they *need* to? (Do I? Why?)

Do I see schools as microcosms of the larger society?

Do I see the cumulative years of experiences (including televised experiences) in school as one major determinant of each student's concept of society . . . and of his current and future role in it?

How much does TV outside of school influence this concept?

Do I understand my students' born-into-it lack of awe of electronic technology—their TV and computer-age nonchalance at the availability of instantaneous information?

Do I try to find out what electronic-era assistance for educational purposes is available via ITV?

Do I try to capitalize on the attention-getting features of television?

Do I realize my own born-into-it comfort in using industrial-age procedures with their heavy emphasis on efficiency and conformity?

Do I see educational technology (including ITV) as a force that can as easily enhance as diminish the human spirit?

Do I realize that I can have a voice in determining the role of technology in education?

Do I see ITV as a valid means of reducing some of my load so that I can give closer personal guidance to individuals?

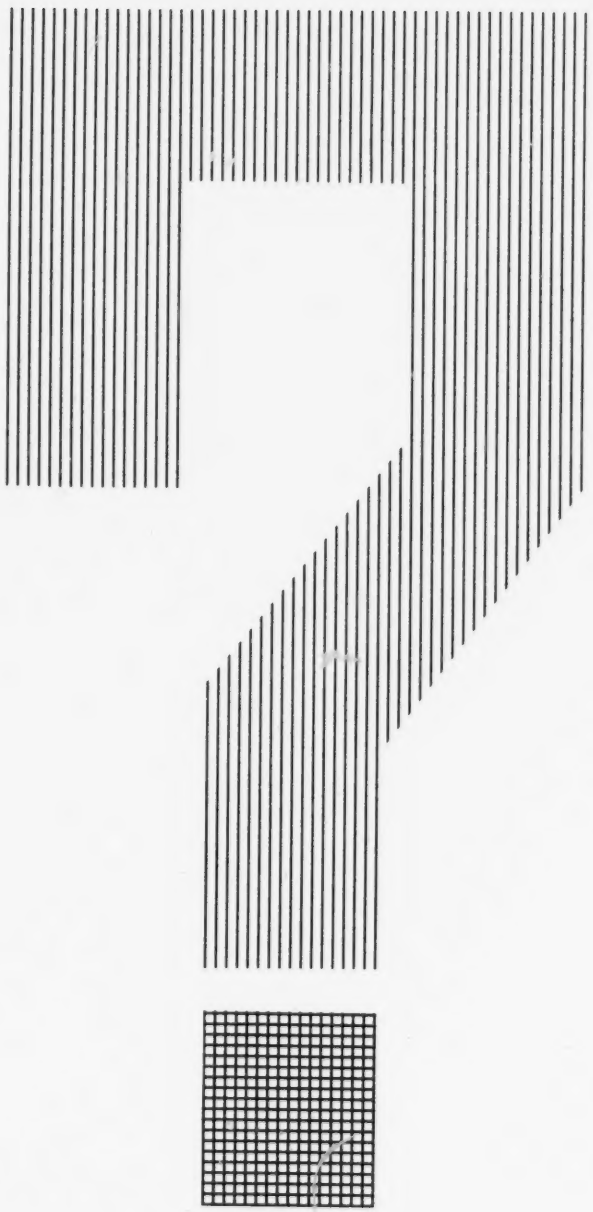
Do my students see me as a warm, caring counselor-teacher who has the time and patience to foster *their* self-direction?

Do my students need to develop more self-direction than I have encouraged or even allowed them in the past?

Do I realize that the rapid rate of change in the United States emphasizes the need for all of us to be more self-directed, more capable of coping with a constantly changing environment?

Do I really try to empathize with my students—today's kids living in their own world?

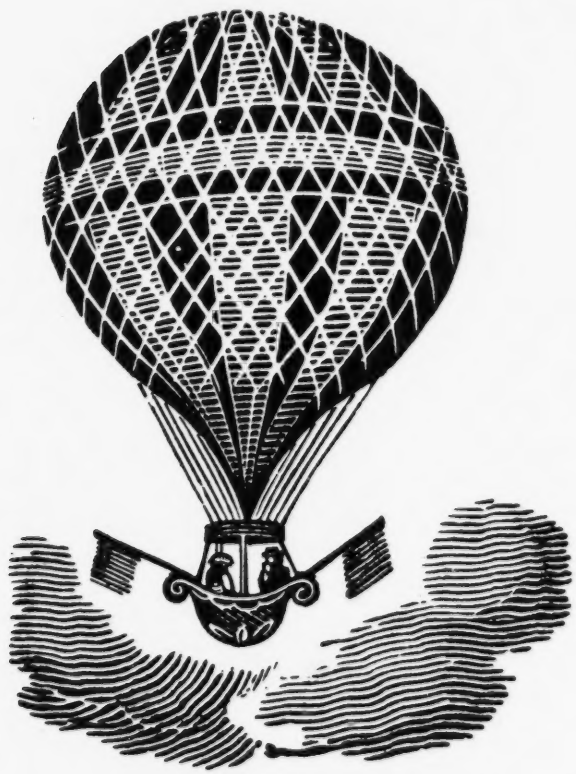
I think a lot of trouble comes from a lack of love between students and teachers.
—A dropout



The education of the free independent person must be a *freeing* process, a process so deliberately and elegantly developed that the student's dependency on the teacher gradually diminishes until the free student emerges.
—Muska Mosston

The object of teaching a child is to enable him to get along without his teacher.
—Elbert Hubbard

Education begins to do its full work only when the materials of learning, ably and imaginatively presented, penetrate into the marrow of the learner and set up there a process of desiring that will not be stilled.
—Nathan Pusey



On what basis do I select the content of my courses?

Do I carefully consider the implications of the knowledge explosion when deciding what my students *need* to know?

Do I try to formulate for myself a structure of fundamental understandings, which can bring order to disconnected facts and observations within my subject area?

Do I believe that students *need* to formulate their own structural understanding in all the valued fields of knowledge?

Are ITV series available that would clarify a structure for me or for my students?

Do I try to formulate for myself an interrelationship of what I've learned in studying different subjects?

Do I believe that students *need* to discover the interrelationships and relevance of one school subject to another?

Are ITV series available that are designed in a multidisciplinary way?

Do I see the *need* for students to deal with the meaningful mainstream of life—the crucial issues and problems of today?

Are ITV series or programs available that focus on these issues?

In light of the knowledge explosion and the severity of problems facing humanity today, do I believe that students *need* to develop the ability to think and act autonomously and productively just as much as they need to acquire a set body of knowledge?

In light of the continuing (although diminishing) amount of conformity that mass media and mass schooling can foster, do I believe that my students *need* to become self-realizing, each one aware of who he is, of what he values, and of what he wants to achieve?

Do I have access to materials (including ITV programming) that can effectively stimulate my students to learn what they need to know?

Is my concept of what's worth knowing related meaningfully to the real world, especially the real world of my students?

Do I try to stretch relevance for my students?

Have I *really* explored the use of TV in stretching relevance?

Do I attempt to understand sound principles of learning and translate them into sound principles of teaching?

Do I really try to individualize instruction?

Could I utilize ITV series designed for different ability levels?

Could I be underestimating the capacities of my students, especially some of the less verbaliy oriented ones? Overestimating?

Am I doing everything I can to provide external motivation by arranging attention-getting learning experiences?

Am I providing models of good performances?

Could I videotape performances for analysis?

Do I believe that learning can be its own reward and do I communicate that belief to students?

Do I give students the opportunity to practice realistic goal setting for themselves?

Do I really try to arrange for active participation (including covert mental operations) by learners?

Can televised experiences induce active participation? To what degree?

Am I providing more than a rhetoric of facts?

Do I look for TV series that can lead to alternative explanations?

Do I plan learning experiences in which thinking skills, social skills, and physical skills are repetitively practiced in different settings?

Do I make use of materials geared to having learners *discover* relationships for themselves?

Do I really believe (and act on the belief) that my students *need* to "do" to "learn" . . . *need* to develop their processes of forming concepts, of inferring new information from a given body of facts, of using facts and principles to explain unknown phenomena, of conducting independent inquiries in which they apply logically sound methods to arrive at conclusions?

Since originality depends upon new and striking combinations of ideas, it is reasonable to expect that the more ideas or images one has available, the better are one's chances of coming up with original ideas.
—E. Paul Torrence

TV "lessons" are not necessarily neat, self-contained packages containing preconceived conclusions and established generalizations. TV "lessons" can present opposing points of view on both current and historical problems to sharpen issues, and to encourage the student to arrive at his own interpretation of the evidence.
—Chester D. Babcock

And only classroom teachers can evaluate a student's interpretation of evidence.
—BCG and AZ

TV can:
—help children preserve their natural sense of inquiry in a culture that values and rewards conformity,
—be focused on developing thinking children,
—bring new content and methods into curricula,
—stimulate learners to discover properties and relationships,
—create a framework which invites a child to progress along a series of stepping stones corresponding with his thinking processes, and
—train a learner in the methods of scientific thought: to deduce from TV observations and not simply absorb.
—Harold Wigren

I feel that ITV is a progressive idea for the enrichment of the minds of children. However, the child needs the atmosphere of relaxation which *only a real-in-the-flesh teacher provides*. TV cannot replace the atmosphere the teacher supplies.
—Steve, a 14-year-old

Have I made an effort to see and evaluate ITV series specifically designed to—

1. Bring large-scale change into existing curricula (major resource series)?
2. Bring illuminating experiences to students (supplementary series)?
3. Enrich the curriculum (programs on commercial and PTV stations that have immediacy and relevance to today's world)?
4. Keep teachers informed about professional matters (in-service programs)?
5. Fill gaps in school programs (total teaching series)?

Do I appreciate the time and effort, the research and development, the blood, sweat, and tears that go into the making of an instructional television program?

Do I see the value of VTR's, discs, cassettes, ITFS, community cables, etc., for increasing the flexibility of ITV?

Do my students need more flexible ITV?

Have I been able to put student needs first in answering all these questions?

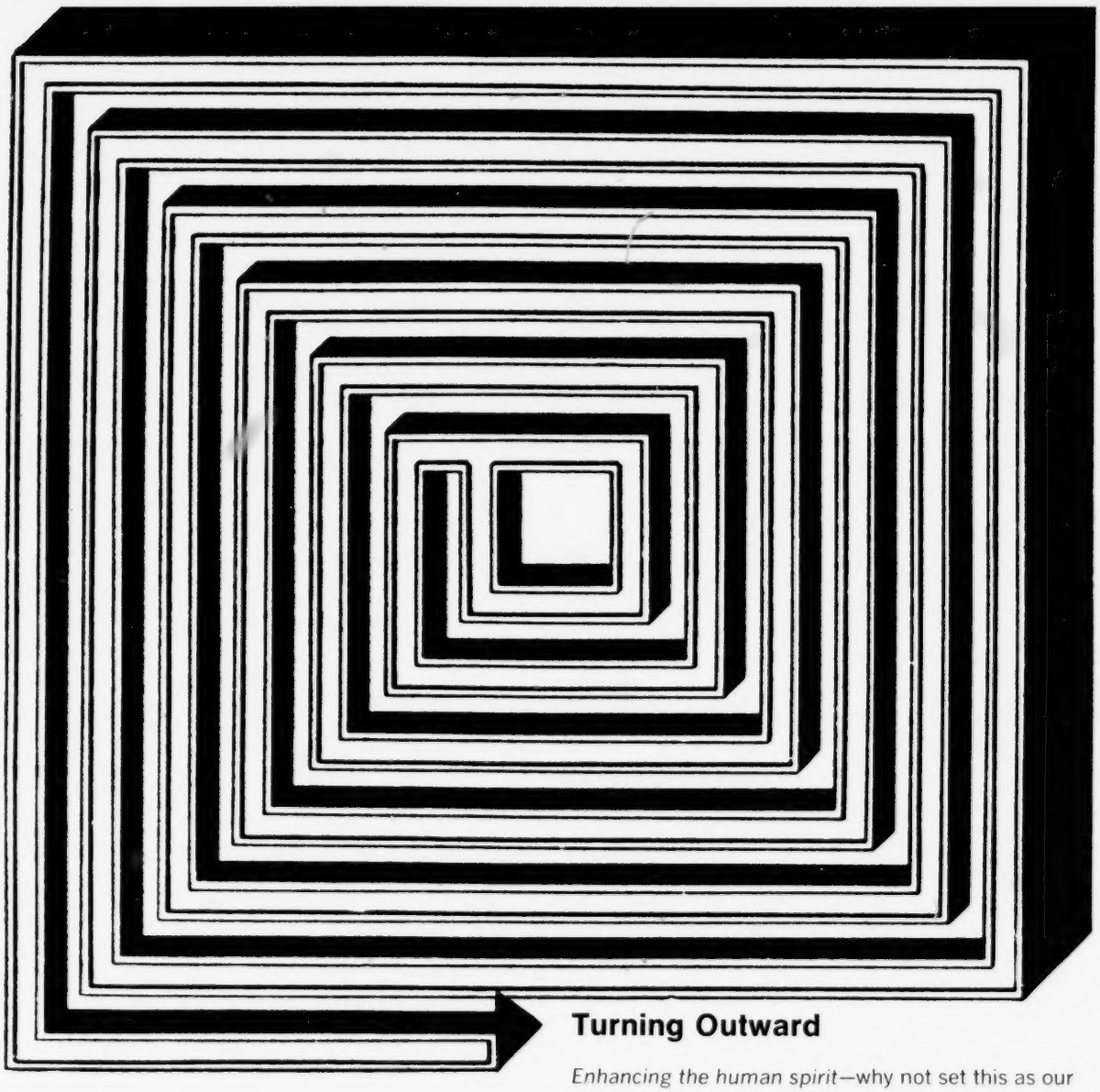
Do I, in the rush of daily life at school, take time to make my students feel important, to enjoy them, to open up to them in an unmanipulative and trusting manner?

Thinking of the many ITV experiences described in this book, how can I use them for helping learners to—

- Maintain their original spontaneous joy in learning?
- Become success-oriented in learning?
- Adopt realistic goals for themselves?
- Become successful problem-solvers, involved participants?
- Become seekers of the new, the untried?
- Express self-controlled emotion in relationship to content and people?
- Experience harmony in working with peers and others?
- Feel important?

Among the many needs we might diagnose in students, is it possible that the above list is most often overlooked?

And finally, is on-going, pervasive self-evaluation a prerequisite for good teaching?



Turning Outward

Enhancing the human spirit—why not set this as our highest goal and use technology to help us reach for it? Using a cool medium such as television to warm values is not as paradoxical as it seems when we realize that in the long run *we* can influence the content of the programming. *we* (hopefully with our students) decide what shall be seen and by whom, and *we alone* are the ones to create the supportive

Perhaps one of the most important uses of instructional television is as a source for reimbursing human values, for developing appreciations of man's cultural aesthetic achievements, and in providing motivation for real and active concern for the relationship between one human being and another.
—Karl Oppenshaw

It embarrasses many teachers to be reminded that all sorts of values are transmitted to students, if not by their textbooks then by the informal curriculum—seating arrangements, the school bell, age segregation, social class distinctions, the authority of the teacher, the very fact that students are in a school instead of the community itself. All such arrangements send unspoken messages to the student, shaping his attitudes and outlook. Yet the formal curriculum continues to be presented as though it were value-free. Ideas, events, and phenomena are stripped of all value implications, disembodied from moral reality.

* * * * *

Worse yet, students are seldom encouraged to analyze their own values and those of their teachers and peers. Millions pass through the education system without once having been forced to search out the contradictions in their own value systems, to probe their own life goals deeply, or even to discuss these matters candidly with adults and peers. Students hurry from class to class. Teachers and professors are harried and grow increasingly remote.
—A. Toffler

What students do in the classroom is what they learn (as Dewey would say) and what they learn to do is the classroom's message (as McLuhan would say). Now, what is it that students *do* in the classroom? Well, mostly they sit and listen to the teacher.
—Postman and Weingartner

classroom environment that psychotherapist Carl Rogers sees as providing the conditions for significant learning.

Creating Conditions for Learning

How do we as teachers behave (not just think) when we want to create an environment most conducive to significant learning? To paraphrase Rogers, we should—

1. Be unified, or integrated, or congruent. . . . In our relationships with students, we should be exactly what we are—not a facade, or a role, or a pretense. Not only should we mean exactly what we say, but our deepest feelings should match what we are expressing.
2. Try to create a safe climate of unconditional positive regard for each child, giving him permission to have his own feelings and experiences and to find his own meanings in them.
3. Experience an accurate empathetic understanding of the student's world as seen from the inside, sensing it as if it were our own, yet never losing the "as if" quality.
4. Communicate, to some degree, our congruence, positive regard, and empathy.

The significant learning that can take place in such a classroom atmosphere (one in which we turn outward openly) might benefit *us* as much as our students.

Planning Active Learning Experiences

The urgent cultural need for mindful and joyful living . . . the goal of enhancing the human spirit—these, technology can attend to if we so direct it. With the

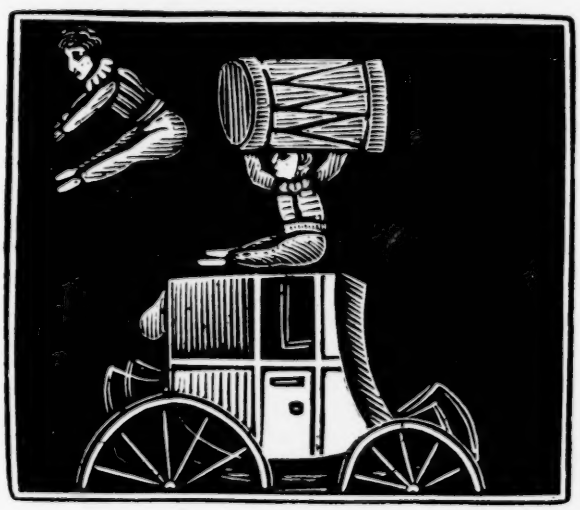
time ITV can "free up" for us and with the structure and process programming it can deliver, surely we can design rich "doing" exercises that actively involve students even during telecasts. The planning of learning experiences can be one of the most creative and enjoyable tasks in teaching. We might ask ourselves whether we are consciously trying to involve students actively in the following ways.

"DOING" DURING TELECASTS

Listening and watching purposefully:
- To gather data
- To understand instructions
- To ask and answer questions; to explain
- To detect the main idea
- To follow the development of an idea
- To follow a sequence
- To watch for the unusual
- To watch for details
- To watch selectively
- To watch for patterns

Thinking:
- To compare, contrast, classify, generalize, summarize
- To formulate hypotheses
- To form opinions and to make decisions based on evidence
- To fill in one's own cognitive structure
- To return to discrepant evidence
- To put in logical order

Appreciating:
- To identify the qualities of a presentation
- To analyze what contributed to them: sound, music, photography, selection of details



Learning does not take place in the activities of the teacher but in the activities of the children. TV can only open doors, raise questions, motivate, and present information. *YOU* must arrange for the development of those activities which will make the information meaningful. *YOU* must oversee the individual learners to insure that their behaviors are changing, their attitudes are improving, their skills are developing, and their appreciations are broadening.
—John Montgomery

For every genius who could profit by some unlimited freedom for any length of time, there are dozens of ordinary mortals who have to be caught up in the spirit and obligations of a group before they get going.

* * * * *

If I had to pick a single word to represent the main value I have found in group work, it would be *momentum*. The mutual stimulation, byplay, rivalry, and cooperative effort and the teacher's leadership, enthusiasm, explanations, and corrections give *momentum* to the work of a class that soon grinds to a halt when each student has to go it alone.

* * * * *

We must not reduce everything done in school to a solo performance.
—Paul Diederich

And only classroom teachers can arrange such valuable group work.
—BCG and AZ

The class can meet as a large group or in small groups, every day or on another agreed-upon schedule. Out-of-class days can be spent in resource centers, conferences with the teacher or other students, etc. The main point is that now there should be time to talk about what is going on in class, how you feel about what is going on, how the class could be improved, why the class is important or not important to other personal interests, and any number of other topics that might emerge out of the group.
—DeLay and Nyberg

"DOING" AS DEVELOPING THE PERSONAL POWERS

Here again we must be introspective. We all believe that learning is doing. But how often do we consciously plan learning experiences that exercise the powers that all of us are born with? How carefully do we balance individual work with dynamic group work? The truly professional task of the teacher, according to Alexander Frazier, author of the following list, is knowing when to call for—

PERFORMING. Acting, acting out, gaming, interpreting, operating, playing, practicing, putting on, role playing, taking part in

GETTING TOGETHER. Befriending, communing, contending, dialoguing, interacting, joining, loving, relating, sharing, working side by side

GETTING WITH IT. Enjoying, expressing, giving out, going out to, reacting, receiving, responding, suffering, taking in

FINDING OUT. Discovering, experimenting, inquiry, investigating, problem solving, questioning, searching, seeking, testing

MAKING. Classifying, composing, constructing, generalizing, inventing, modeling, organizing, planning, putting together, shaping, theorizing

CONTROLLING. Changing, directing, managing, persuading, preparing, projecting, teaching, trying out, willing, wishing

SIGNIFYING. Finding meaning in, honoring, judging, meditating, questing, reflecting, remembering, thinking about, valuing, worshiping

PERSISTING. Coming back to, enduring, hanging onto, holding on, resisting, resolving, returning to, reviving, trying.

Decisions! What powers are to be exercised by students in school? Harnessed to what content to be learned? Whether to smile or to frown? Thinking back, most of us can remember specific incidents in school when our innermost selves were influenced by a teacher. Not many, but a few. And chances are the incidents were of the smile-frown variety related to our exercise of one of the above listed personal powers. Surely, this should be a clue to us in determining where our highest level of decision making lies.

If teachers affect eternity, as Henry Adams says; and if teachers are the sculptors of the intangible future shaping the most obstinate substance in the universe—the substance of man, as Loren Eiseley says; and if the quality of students' lives is often inalterably determined by the beliefs, feeling, and assumptions of teachers, as Postman and Weingartner say; and if television and other technologies can deliver attention-getting, humanely conceived programming focused on what is worth knowing, as proponents of ITV say; then shouldn't we seek out (and demand, if necessary) all the time-freeing technological assistance we can get so that we can concentrate more on helping students to believe in their ability to learn and in their estimation of their own worth?

The deepest urge in human nature is the desire to be important.
—John Dewey

Is it possible that we can be most important through helping others feel important?
—BCG and AZ

When the mind is thinking, it is talking to itself.
—Plato

We think ITV is capable of stimulating our minds' dialogues. Do you?
—BCG and AZ

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